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GENERAL STUDIES (TEST CODE : 2365)

Name of Candidate	HRITWIK RANJAN		
Medium Eng./Hindi	ENGLISH	Registration Number	1085424
Center		Date	

INDEX TABLE

Q. No.	Maximum Marks	Marks Obtained
1	10	
2	10	
3	10	
4	10	
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6	10	
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8	10	
9	10	
10	10	
11	15	
12	15	
13	15	
14	15	
15	15	
16	15	
17	15	
18	15	
19	15	
20	15	

Total Marks Obtained:

Remarks:

INSTRUCTIONS

1. Do furnish the appropriate details in the answer sheet (viz. Name, Registration Number and Test Code).
   उत्तर पुस्तिका में सूचनाएं भरना आवश्यक है (नाम, प्रश्न–पत्र कोड, विद्यार्थी क्रमांक आदि)।
2. There are **TWENTY** questions printed in **HINDI & ENGLISH.**
   इसमें बीस प्रश्न हैं **हिन्दी और अंग्रेजी** में छपे हैं।
3. **All questions are compulsory.**
   सभी प्रश्न अनिवार्य हैं।
4. The number of marks carried by a question/part is indicated against it.
   प्रत्येक प्रश्न/भाग के अंक उसके सामने दिए गए हैं।
5. Answers must be written in the medium authorized in the Admission Certificate, which must be stated clearly on the cover of this Question-Cum-Answer (QCA) Booklet in the space provided. No marks will be given for answers written in medium other that the authorized one.
   प्रश्नों के उत्तर उसी माध्यम में लिखे जाने चाहिए जिसका उल्लेख आपके प्रवेश पत्र में किया गया है और उस माध्यम का स्पष्ट उल्लेख प्रश्न–सह–उत्तर (क्यूसीए) पुस्तिका के मुख्य पृष्ठ पर अंकित निर्दिष्ट स्थान पर किया जाना चाहिए। उल्लिखित माध्यम के अतिरिक्त अन्य किसी माध्यम में लिए गए उत्तर पर कोई अंक नहीं मिलेंगे।
6. Word limit in questions, if specified, should be adhered to.
   प्रश्नों में शब्द सीमा, जहाँ विनिर्दिष्ट है, का अनुसरण किया जाना चाहिए।
7. Any page or portion of the page left blank in the Question-Cum-Answer Booklet must be clearly struck off.
   उत्तर पुस्तिका में खाली छोड़ा हुआ पृष्ठ या उसके अंश को स्पष्ट रूप से काटा जाना चाहिए।

Is student recommended for One-to-One mentoring?

Recommended	Strongly Recommended

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EVALUATION INDICATORS

1. Contextual Competence
2. Content Competence
3. Language Competence
4. Introduction Competence
5. Structure - Presentation Competence
6. Conclusion Competence

Overall Macro Comments / feedback / suggestions on Answer Booklet:

1.

2.

3.

4.

5.

6.

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All the Best

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Q1. प्रभावी एवं न्यायसंगत भूमि सुधारों की अनुपस्थिति ने भारत में गरीबी की निरंतरता में कैसे योगदान दिया है?

How has the absence of effective and equitable land reforms contributed to the persistence of poverty in India? (Answer in 150 words) 10

Land reforms were implemented in post-Independent India to reduce concentration of land with zamindars and enable a land ceiling and land consolidation regime.

But apart from states like Kerala, West Bengal, these reforms were not effective.

Absence of effective land reforms

1) 86% farmers are small and marginal
⇒ less than 2 hectares land

2) 10% land concentrated with 1% large farmers

3) Use of Right to Property Act to delay land reforms

This led to land reforms being virtually non-existent in states like Bihar.

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Persistent poverty

1) lack of land resources ⇒ Forced to undertake landless labours job ⇒ low wages

2) No investment in capitalist agriculture
⇒ Agriculture contributes only 17% to GDP.

3) Hindered implementation of Swaminathan committee suggestions to increase agricultural income. Eg- Contract Farming

4) Inhibited industrial investment
Eg- Small land parcels in Bihar lead to challenges in acquiring land to set up factory.

5) Difficulty in infrastructure development by governments due to land disputes.

Pending land reforms alongside conclusive titling and Digitization of records needed. SVAMITVA scheme is a step in right direction

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Q2. यूनिफाइड पेमेंट इंटरफेस (UPI) ने भारत में वित्तीय समावेशन को किस प्रकार बढ़ावा दिया है? टिप्पणी कीजिए।

Comment on how the Unified Payment Interface (UPI) has unleashed financial inclusion in India. (Answer in 150 words) 10

UPI is an initiative of NPCI under RBI to enable cashless payment from one account to other using ICT and mobile phones.

Unleashed financial inclusion

1) Enabled faster transactions

Eg - Real-time IMPS money transfer

2) Eliminated need to visit banks and ATMs for withdraw cash

⇒ Financial inclusion of those living in areas of less banking penetration

3) Reduced dependence on cash

Eg - Cash transactions are only 50% of overall (2023 RBI)

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4) Access to multiple payments and settlements services

Eg- Electricity bill payments, metro recharge

5) No charge for transactions ⇒ Reduced cost of domestic and cross-border transactions

6) Promoted opening of bank branches among rural women. Eg- JAN Dhan account

7) Easier access to government welfare money via UPI. Eg- MGNREGA, PM-KISAN

Challenges
- Digital illiteracy (~20% in rural)
- Digital infrastructure (only 33% internet in rural)
- Technical Glitches increased to 2%
- Data privacy

UPI can revolutionize business ecosystem in India and lead to reduced inequalities (SDG-10).

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Q3. भारत की आर्थिक संवृद्धि और अवसंरचना के विकास को सहायता प्रदान करने में विकास वित्त संस्थानों (DFIs) की भूमिका पर चर्चा कीजिए।

Discuss the role of Development Finance Institutions (DFIs) in supporting India's economic growth and infrastructure development. (Answer in 150 words) 10

DFI are domestic and global institutions that provide credit to government to invest in developmental activities. Eg- IIFCL

Role of DFI in India

(I) Infrastructure development

1) Huge investment needs in infrastructure
Eg- $1.5 BT needed to achieve target of $5 BT economy

2) Deficiency of funds with government
Eg- Total expenditure is ₹45 Trillion which is less than required.

3) Need of capital investment to have multiplier effect and crowding-in of private investment.

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(II) Economic growth

1) Investment in human capital formation

Eg- Currently, only 1.5% of GDP on health and 4.5% on education

2) Investment from DFIs can mobilize public money to revive economic activities. Eg- Infra creation would lead to development of industrial corridors

3) Create new jobs in secondary sector

4) Promote export activities.

Challenges → High NPAs
→ Red-tapism in project

Government is collaborating with IIFCL, NABFID etc DFIs ⇒ Helpful in $5T economy.

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Q4. भारत को खाद्य प्रसंस्करण के क्षेत्र में अपनी तुलनात्मक बढ़त का लाभ उठाकर इस क्षेत्र को वैश्विक ऊर्जागृह में परिवर्तित करने की आवश्यकता है। विवेचना कीजिए।

India needs to leverage its comparative advantage in food processing to transform the sector into a global powerhouse. Discuss. (Answer in 150 words) 10

Food Processing sector is a sunrise sector of Indian economy contributing 12% to manufacturing GVA and 10% to agricultural GVA in 2022.

Comparative advantage
- → huge agriculture workforce
  Eg- 45% of workforce
- → Significant production
  Eg- Among top 5 producers
- → Availability of skills in food processing
- → Evolving market for processed food

Need to leverage comparative advantage

1) Reduce glut in agriculture
   Eg- 45% workforce ⟹ 17% output
2) Increase farmer income. Eg- currently,

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20% comes from Subsidies

3) Increase share of export

⇒ currently, only 2.5% (13th largest)

4) Diversify rural economy

5) Promote Agripreneurship

Challenges

1) Lack of access to credit

2) Absence of processing infrastructure

Eg- Refrigeration, Storage

3) Lack of access to market due to APMC restrictions

Way forward

1) Access to credit. Eg- PSL loans, Mudra loans

2) Skilling in market access. Eg- Use of e-NAM, Contract farming

These recommendations can transform into powerhouse and also double farmer income.

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Q5. प्लास्टिक जलवायु परिवर्तन में किस प्रकार योगदान देता है? भारत इस दिशा मे कई उपायों को प्रारंभ करने के बावजूद प्लास्टिक प्रदूषण को नियंत्रित करने में सफल क्यों नहीं हुआ है?

How do plastics contribute to climate change? Why has India not been successful at controlling plastic pollution despite initiating several measures? (Answer in 150 words) 10

Plastic generation in India is ~34 lakh (3rd largest) tonnes per annum (CPCB) which leads to huge pollution in land and water.

Contribute to climate change

1) Burning of plastics ⇒ Dioxins released that cause pollution

2) Non-biodegradable ⇒ Accumulate in environment, landfills for centuries

3) Plastic contribute to ~80% of marine litter ⇒ Reduce capability of oceans to sequester carbon

4) Plastic production is energy intensive ⇒ GHG emission.

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Measures by India
- → Ban on Single use Plastic
- → Plastic waste Management Rules
- → Extended Producer Responsibility

Reasons for limited success

1) Lackadaisical enforcement of measures

Eg - Single use plastic manufactured in unorganized sector

2) Exemption of 50% plastics from Single use plastic and Plastic waste Rules

3) Lack of alternatives to plastics ⇒ Implementation challenges

4) Evolving business require plastic. Eg - Grocery delivery apps like Blinkit

5) Behavioral challenges ⇒ Non-segregation

Plastic management is crucial to achieve SDG 13 of climate action.

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Q6. भारत में सार्वजनिक स्थलों पर अक्सर होने वाली भगदड़ के कारणों की व्याख्या कीजिए। इस तरह की घटनाओं को कैसे रोका जा सकता है?

Explain the causes of frequent stampedes at public places in India. How can such incidents be prevented? (Answer in 150 words) 10

Causes of stampedes in India

1) Poor urban planning

⇒ Congested roads, narrow lanes

2) Encroachment on public land

3) Lack of civic etiquettes among public

4) Huge population density in urban areas

Eg- 50% population in slums

5) Special occasions like festivals and concerts ⇒ Increased influx of people.

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(इस भाग में कुछ ना लिखें)

6) Lack of warning systems and prior information.

Measures to prevent

1) Creation of wider roads

2) Removal of encroachments

Eg- Anti-encroachment drives in UP

3) Awareness among public

4) Limitations on number of attendees of a festival, concert.

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Q7. ह्यूमनॉइड रोबोट्स के क्षेत्र में हुई नवीनतम प्रगति क्या है? इन रोबोटों के समाज पर पड़ने वाले प्रभावों मे जुड़े मुद्दों पर चर्चा कीजिए।

What are the latest advancements in the field of humanoid robots? Discuss the issues surrounding the impact of these robots on society. (Answer in 150 words) 10

Advancements in humanoid robots

1) Applications in medical field

Eg- Sawai Jai Singh hospital in Rajasthan used during COVID

2) Integration of AI and ML to make robots more efficient

3) Useful in space missions

Eg- Vyom humanoid robot used to test space conditions for Gaganyaan Mission

4) Useful in different fields where human intervention is difficult.

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5) Used in cleaning of sewerages

Eg- Bandicoot robot in Kerala.

Impact on society

1) Loss of jobs for humans

2) General AI or AGI can lead to humanoid robots dominating mankind

3) Increased inequality

↳ Countries than can afford will benefit

↳ Others will lack opportunities.

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Q8. पुनर्संयोजी डीएनए तकनीक ने जेनेटिक इंजीनियरिंग में किस तरह क्रांति ला दी है? इसके प्रभावों को उदाहरण सहित स्पष्ट कीजिए।

How has recombinant DNA technology revolutionized genetic engineering? Provide examples to illustrate its impact. (Answer in 150 words) 10

Recombinant DNA technology

1) Cutting DNA strands and modifying it to include desirable traits

Eg- CART cell therapy
↳ Medical benefits

2) Genetic sequencing
Eg- Genome India Project

3) Vaccine development
Eg - mRNA technology

4) Creating clone babies

5) Diagnosing cancers and other genetic diseases like rare diseases

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(इस भाग में कुछ ना लिखें)

6) Use of CRISPR-Cas9 technology has revolutionized this

7) Creating HYV seeds having pest & resistance, disease tolerance

Eg- DMH-11 mustard.

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Q9. जम्मू-कश्मीर में गैर-राज्य अभिकर्ताओं द्वारा अपनाई जाने वाली नवीन एवं उभरती रणनीतियों ने इस क्षेत्र में गंभीर सुरक्षा चुनौतियां उत्पन्न कर दी हैं। विवेचना कीजिए।

New and evolving tactics employed by non-state actors in Jammu and Kashmir have created significant security challenges in the region. Discuss. (Answer in 150 words) 10

After abrogation of Article 370, anti-social elements and non-state actors have launched new tactics to spread terrorism in J&K.

Security challenges due to new tactics

1) Use of drones to supply arms and ammunitions

Eg- Recent incidence in Rajouri-Poonch region

2) Online radicalization of youth

⇒ Lone-wolf attacks

3) Shifted focus towards Pir-Panjal region due to less security forces

4) Misinformation and disinformation campaigns to spread communal

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(इस भाग में कुछ ना लिखें)

~~his~~ disharmony.

5) Use of hybrid and Grey zone warfare

6) Use of hidden underground tunnels to pass terrorists into India.

Indian Army and government is also taking steps to counter these tactics

1) De-radicalization campaigns

Eg- operation MAA and operation 'Sadbhavna' under 'Winning Hearts And Minds'

2) Better border surveillance by sensors, radars

Eg- CIBMS, QIT-Bold

3) Use of GIS to detect underground passages.

4) Border protection system to combat drones.

A comprehensive security strategy and Theatrized command for J&K can be helpful.

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Q10. भारत में उभरती साइबर सुरक्षा चुनौतियों से निपटने के लिए निरंतर नवाचार और दक्षता की आवश्यकता है। इसके मद्देनजर, भारत में साइबरस्पेस की सुरक्षा में CERT-In की भूमिका पर प्रकाश डालिए।

The evolving cybersecurity challenges in India demand constant innovation and agility. In light of this, give out the role of CERT-In in safeguarding cyberspace in India. (Answer in 150 words) 10

India is 10th most prone to cyberattacks in the world due to multiple causes which manadates constant innovation and agility

Evolving cyber challenges

1) Cross-border cyber attacks on critical infrastructure. Eg- From China, Pakistan on India's power infrastructure

2) Use of cyberspace for warfare ⟹ Hybrid warfare

3) Increasing financial frauds
Eg- Phishing, Malware attacks

4) ~~tact~~ Nascent stage of Data Protection Regime
⟹ PDPA Act

5) Data theft. Eg- Adhar data stolen
↳ AIIMS data attack.

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Role of CERT-IN in safeguarding cyberspace

1) Monitoring of cyber space around critical infrastructure

Eg- Cyber Swachhta Kendra

2) Detecting suspicious cyber behaviour

3) Countering incidences of data breach and data theft

4) Spreading cyber awareness in society

5) Developing resilient cyber infrastructure for government and defence purposes

6) Supporting law enforcement agencies in dealing with cyber crime.

Eg- CBI Megh Chakra operation.

Strong cyber security is essential for national security and economic development.

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Q11. भारत में जल-गहन फसल पद्धति की ओर असमान झुकाव क्यों रहा है? संधारणीय जल-उपयोग फसल पद्धति सुनिश्चित करने के लिए लागू किए जा सकने वाले उपायों पर चर्चा कीजिए।

Why has there been an uneven tilt towards water-intensive cropping pattern in India? Discuss the measures that can be implemented to ensure a sustainable water-use cropping pattern. (Answer in 250 words) 15

India faces adverse groundwater crisis due to tilt towards water-intensive cropping as 90% of extracted groundwater is used for agricultural activities.

Tilt towards water-intensive cropping

1) Government support to water-intensive crops like rice and wheat

Eg - MSP procurement in Punjab, Haryana

2) Power subsidies by state governments

⇒ Unsustainable extraction of water

3) FRP regime for sugarcane

⇒ Sugarcane cultivation in water-deficient regions like Vidarbha.

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4) Lack of skills and awareness required for diversification

Eg- Pulses require less water, but awareness is less

5) Absence of high yielding variety seeds for water-efficient crops

Eg- Millets are water efficient, but there is no HYV seeds in market
↳ HYV exists for water-intensive rice (IR8).

6) Consumption pattern in India is dominated by rice and wheat ⇒ More growth of these

Measures needed

1) Rationalization of MSP and PDS regime

Eg- Millets procurement ⇒ Focus of farmers on this water-efficient crop.

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2) Optimizing power subsidies

Eg- can be made more targeted to prevent water exploitation

3) Skilling of farmers. Eg- NAHEP Scheme

4) Subsidies for micro-irrigation → Drip, → Sprinkler

Eg- PM- Krishi Sinchayi Yojana

5) R&D to promote water-efficient crops like millets and pulses.

6) Awareness among consumers to create market demand. Eg- Eat Right movement

7) Creation of 'Pani Panchayats' and 'Water-User Associations'.

These measures can reduce faulty agricultural practices and lead to "Water-plus" status of India.

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Q12. विकास एजेंडे में जलवायु परिवर्तन संबंधी चिंताओं को प्रमुखता से शामिल करने के लिए बजट प्रक्रिया के साथ जलवायु वित्त को समेकित करने की आवश्यकता है। इस संदर्भ में, भारत में जलवायु बजट की आवश्यकता पर चर्चा कीजिए।

Mainstreaming climate change concerns within the development agenda requires integration of climate finance into the budgeting process. In this light, discuss the need for climate budgeting in India. (Answer in 250 words) 15

Climate budgeting refers to incorporating the financial needs for tackling climate ~~clim~~ change into annual budgets in order to better mitigate climate hazards.

Integration of climate finance in budgeting

1) Setting climate priorities and making policies based on these priorities

Eg- National Action Plan for climate Change

2) Using tools of budgetary policy making to make funds available for implementing these policies.

Eg- National Adaptation Fund, SIDBI's

Arang Sustainability Fund

3) Climate accounting ⇒ Accounting for negative impact of different budgetary provisions on climate.

⇒ This can be done by EIA

4) Creating tools of evidence generation to ensure climate finance was used for relevant purpose.

Need for climate budgeting

1) climate change mitigation priorities of government. Eg - Paris Pact

2) Scarcity of funds to achieve mitigation.

Eg - $10 trillion needed to achieve net zero by 2070 (IFSCA)

3) lack of climate resilient infrastructure

⇒ Development activities harm climate

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4) Renewable energy transition requires high investment
Eg 500GW target by 2030

5) Budgetary allocation needed to switch to Alternate Fuels Technology like EV, CNG

6) Get information about needs of different sectors to achieve climate resilience
Eg- Power, transport

7) Give financial backing to climate commitments.

Government must focus on extra-budgetary climate finance also such as Sovereign Green Bonds, Green Infra, GCF Funds etc.

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Q13. भारत में कृषि उपज के भंडारण और विपणन में प्राथमिक कृषि ऋण समितियां (PACS) क्या भूमिका निभाती हैं? हाल ही में प्रारंभ की गई 'सहकारी क्षेत्र में विश्व की सबसे बड़ी अनाज भंडारण योजना' के महत्व पर टिप्पणी कीजिए।

What role do Primary Agricultural Credit Societies (PACS) play in the storage and marketing of agricultural produce in India? Comment on the significance of the recently launched 'World's Largest Grain Storage Plan in Cooperative Sector'. (Answer in 250 words) 15

PACS are the lowest tier of rural co-operative banks which is a 3-tier structure and helps in grassroot credit and marketing activities

State co-operative → District co-operative → PACS

Role in storage and marketing

1) Provide credit to farmers to access storage facilities
Eg- Cold storage, refrigeration

2) Fund FPOs, SFAC, other farmers

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groups in setting up storage facilities in villages

3) Credit to farmers to brand and market their produce

4) Access to organic certification to reach wider markets

Eg- NPOP

5) Provide skill training in digital marketing

World's largest Grain Storage Plan

1) Creation of world-class storage infrastructure

2) leverage Economies of scale from co-operative sector.

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Q14. भारत में मौजूदा विमान पत्तनों का विस्तार और नए विमान पत्तनों का विकास केवल यात्रा संपर्क में सुधार तक सीमित नहीं है बल्कि यह कहीं अधिक लाभ प्रदान कर सकता है। चर्चा कीजिए।

The expansion of existing airports and the development of new airports in India can provide benefits beyond merely improving travel connectivity. Discuss. (Answer in 250 words) 15

There has been a significant expansion of airport infrastructure in the recent years with number of airports reaching more than 60.

Benefits of airport expansion

(I) Travel connectivity

1) Creation of new routes for air connectivity. Eg- Connectivity to Andaman

2) New routes in non-metro cities.

Eg- New airport in Noida (Jewar) and Ayodhya

3) Reduction is airport congestion and better traffic management.

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⇒ Air travel traffic increased by 10 times between 2001 and 2022.

(I) Promotion of tourist places

Eg- Connectivity to Lakshadweep can improve tourist potential of the islands.

(II) Revive local economies

Eg- Airport at Ayodhya is expected to revive economic activities and make it hub of religious tourism

(IV) Agricultural benefits

Eg- Under Krishi Udan, faster transport of perishable agriculture and horticulture products

(V) Improve Ease of Doing Business by fasting domestic and international travel.

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(VI) Increase the modal share of freight transport by airway

Eg - Currently 80% dominated by road and railway

(VII) Create new business opportunities at airports. Eg - Shops, restaurants

(VIII) Increase allied activities

Eg - Maintenance and Repair activities, domestic manufacturing of aircrafts etc.

Challenges
- Dependence on imports for aircraft
- Poor financial condition of airlines. Eg - Jet Airways
- Safety concerns
- High ATF costs.

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Q15. भारत अपने ऊर्जा क्षेत्रक में महत्वपूर्ण परिवर्तन लाने के अंतिम पड़ाव पर है और देश की ऊर्जा क्षमता में पर्याप्त वृद्धि करने के लिए तैयार है। इस परिवर्तन को संधारणीय और समावेशी बनाने के लिए क्या आवश्यक है?

India is on the cusp of a significant transformation in its energy sector and is set to substantially augment the country's energy capacity. What makes this transformation sustainable and inclusive? (Answer in 250 words) 15

Under the Panchamrit commitments, India is targeting to increase the renewable energy capacity from current 195GW to 500 GW by 2030, which indicates significant energy sector transition.

Status of India's energy capacity

1) India's total power consumption is ~500GW, which is mainly dependent on coal (~50%)

2) 195GW (~43%) is from renewable and 203GW (~45%) is from non-fossil sources

3) Due to high population demand and

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development needs, India's energy demand is increasing at one of the fastest growing rates

4) India is substantially increasing energy capacity
- → Coal based Thermal Power plants
- → Focus on Renewables
- → Government policies
  - → India Energy Plan 2023
  - → MBED scheme to better manage distribution

Sustainable and inclusive transformation

(I) Sustainability

1) Expansion of renewable energy capacity

Eg - India is 4th largest in renewable capacity

2) Focus on alternate fuels

Eg- Natural gas share in energy mix targeted at 15% by 2030.

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3) R&D on new energy technology

Eg- Hydrogen fuel cell, Green Ammonia

4) Reduction in import dependency

Eg- Ethanol blending program ⇒ Reduce crude dependency

(II) Inclusivity

1) Access to clean energy for underprivileged

Eg- Ujjwala Yojana

2) Infrastructure creation for better access to energy for all. Eg- CGD network

3) Reducing AT&C losses. Eg- Smart metering

Challenges like heavy coal dependence, infrastructure and financial constraints needs to be dealt with in order to achieve net zero by 2070 through energy transformation.

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Q16. जलवायु परिवर्तन पर संयुक्त राष्ट्र अंतर-सरकारी पैनल (IPCC) ने अपनी हालिया रिपोर्ट में इस बात पर बल दिया है कि नेट नेगेटिव CO2 एमिशन के लक्ष्य की प्राप्ति के लिए कार्बन डाइऑक्साइड रिमूवल (CDR) आवश्यक है। CDR क्या है? CDR प्राप्त करने के विभिन्न तरीकों का वर्णन कीजिए और इससे संबंधित चुनौतियों की विवेचना कीजिए।

The UN Intergovernmental Panel on Climate Change (IPCC) in its recent report emphasizes that carbon dioxide removal (CDR) will be necessary to achieve net negative CO2 emissions. What is CDR? Describe the different methods to attain CDR and discuss the associated challenges. (Answer in 250 words) 15

CO_2 removal refers to carbon capture and storage or 'Carbon sequestration', i.e. capturing carbon dioxide from environment and storing it in different sinks.

Methods of CDR

1) Green carbon sequestration

> Planting trees that can sequester carbon by photosynthesis

> Also in the form of 'soil organic carbon'

Eg- India's Paris NDC is to create

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forest carbon sink of 2.5-3 Billion tonne capacity

2) Blue carbon sequestration

> Carbon stored in water bodies like oceans, seas

> In water, sediments in oceans and bodies of plants and animals

> Blue carbon is the biggest sink overall

Eg- Blue carbon Initiative

3) Geological sequestration

> Carbon stored in rock pores, aquifers and in form of mineral carbonates

> Capturing in empty oil wells ⇒ Increased oil recovery.

These methods can help remove CO_2 from atmosphere and achieve net negative CO_2 emission.

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Challenges

1) Deforestation due to development needs

Eg- less than 25% of India is under forest cover (ISFR 2023)

2) land degradation ⇒ Reducing capacity to hold carbon Eg - 30% land degraded in India (ISRO)

3) Biodiversity loss and pollution in oceans

⇒ Reduced blue carbon

4) Lack of focus on geological sequestration

5) climate change ⇒ Arctic ice melt ⇒ Release of Chy.

Government initiatives like

Green India Mission, NAPCC, Green credit ⇒ Steps in right direction.

Q17. भारत बाढ़ से सबधित खतरों के प्रति संवेदनशील क्यों है? उपयुक्त उदाहरण प्रस्तुत करते हुए भारत के विभिन्न भागों में बाढ़ से संबंधित आपदाओं के लिए उत्तरदायी कारणों का विश्लेषण कीजिए।

What makes India vulnerable to flood-related hazards? Giving suitable examples, analyse the causes for flood-related disasters in various parts of India. (Answer in 250 words) 15

According to NDMA, ~50% of Indian rivers are prone to regular floods, impacting large number of people and geographies.

Vulnerability of India to flood hazards

1) Lack of infrastructure to mitigate flood hazards.

Eg- Embankments, Levees

2) High population density living in floodplains

Eg - Terai region in Indo-Gangetic plains

3) Lack of awareness and disaster management training.

4) Changing climate leading to change in

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Spatial and temporal distribution of monsoon

Eg- Delayed onset and withdrawal of rains.

Causes for flood disasters in India

1) South India

> Concretization of green belts for road and infrastructure construction ⇒ Unplanned urbanization

Eg- Chennai flash floods

2) Western India

> Poor drainage system and siltation in cities like Mumbai

> High tides in Arabian Sea coincide with monsoon ⇒ Floods

3) Central India

> Physiographic reasons ⇒ Hard rocks

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of peninsula prevent water to percolate ⇒ floods

4) Eastern India

> Reclamation of terai floodplains in UP

> Uncertain monsoon rains in Ganga river

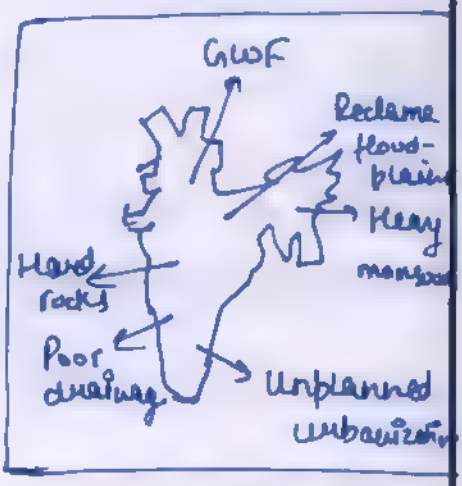
5) North-East India

> Heavy rainfall during monsoon
↳ Mawsynram in Meghalaya

6) North ~~East~~ India

> Glacial lake Outburst floods due to climate change. Eg- Chamoli, Uttarakhand

7) Apart from these, high population density, mismanagement of surface water are also common reasons.



Hazard zonation, Early warning system, proper dams and embankments can help manage floods better.

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Q18. ISRO का आदित्य-L1 मिशन तथा NASA का पार्कर सोलर प्रोब सूर्य के अपने अध्ययन के संदर्भ मे किस प्रकार भिन्न हैं?

How do ISRO's Aditya-L1 mission and NASA's Parker Solar Probe differ in their study of the sun? (Answer in 250 words) 15

ISRO recently launched Aditya L-I mission to study the sun from Lagrange point 1.

NASA also has Parker Solar Probe Mission to study the sun.

Comparison of Aditya L-I and Parker

1) Aditya L-I will study sun from L-I point which is ~148 million km from sun using payloads.

⟹ Parker Probe will pass through the corona of the sun to study sun more closely.

2) Aditya L-I has objectives of

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↳ Studying solar wind from Sun
↳ Impact of solar wind on Earth systems
↳ Nuclear fusion on Sun

⟹ Parker Probe is trying to understand the origin of Sun

3) Aditya L-I will use 7 payloads
↳ VELC ↳ Solex ↳ SUIT
↳ HeLiX ↳ PAPA
which are observation payloads and analyse payloads

⟹ Parker probe does not have payloads, it will collect information about Sun closely and transmit to Earth.

Both missions have capability to increase our understanding of processes on Sun, its origin that can help in

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protection from solar winds and also generate nuclear fusion energy.

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Q19. भारत की अर्थव्यवस्था और राष्ट्रीय सुरक्षा पर धन शोधन (मनी लॉन्ड्रिंग) के हानिकारक प्रभावों को रेखांकित कीजिए। इस समस्या से निपटने में सामना की जाने वाली चुनौतियों पर चर्चा कीजिए।

Bring out the detrimental impact of money laundering on the economy and national security of India. Discuss the challenges faced in countering this menace. (Answer in 250 words) 15

Money laundering refers to disguising the origins of money procured through illegal means such that its origins cannot be traced.

Process

Placement ⟹ Layering ⟹ Integration

Impact on economy

1) Exit of capital from country

⟹ ~ $10 Billion tax evaded from India per year by money laundering

2) Impact on government resources

Eg- Deprives government of tax revenue
↳ 12% of GDP only

– Resources spent on countering money laundering (ED etc).

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3) Round tripping of black money via P-notes ⟹ Volatile capital makes economy unstable

4) Use of cryptocurrency in money laundering ⟹ Unregulated parallel financial system

Impact on national security

1) Use of laundered money for organized crime. Eg- Smuggling, Narcotics

2) Use in terror activities

3) Deprives government of resources that can be spent on defence and law enforcement.

Hence, Supreme Court has observed that money laundering is as heinous as terrorism.

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Challenges in countering

(I) Digital technology used in money laundering.

1) Cryptocurrency ⇒ Difficult to detect

2) Use of dark web ⇒ Hawala networks operate on dark web anonymously

(II) complex layering of transactions through shell companies

(III) Use of BEPS mechanism to launder money to foreign jurisdictions like Mauritius

(IV) lack of new age skills among law enforcement. Eg - Dark web knowledge

(V) lack of International governance mechanism to counter money laundering.

PMLA and ~~Special~~ Serious Fraud Investigation office by government and FATF globally are steps in right direction.

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Q20. वैश्विक मंच पर अपनी प्रतिष्ठा को बढ़ाने के लिए रक्षा निर्यात भारत के लिए एक रणनीतिक अनिवार्यता है। विवेचना कीजिए। रक्षा निर्यात को बढ़ावा देने के लिए सरकार द्वारा कौन-से उपाय अपनाए गए हैं।

Defence exports are a strategic imperative for India to enhance its stature on the global stage. Discuss. What are the measures adopted by the government to bolster defence exports? (Answer in 250 words) 15

Currently, India exports ~$2.5B worth defence equipment with target of $5B by 2030.

Strategic imperative for India

1) Status of 'Net Security Provider'
→ under SAGAR and BIMSTEC charter

2) Emerge as a reliable defence partner that can provide hi-tech defence
Eg- Sale of Brahmos to Philippines

3) Counter belligerence of China by partnering with like-minded countries
Eg- Partnership with ASEAN to counter China's 9 dash line and String of Pearls.

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4) Increase geopolitical clout that can help at global forums. Eg- UNSC membership

5) Achieve self-reliance in defence sector

⇒ Target of export would promote defence indigenization and modernization

6) Source of revenue for government

Eg - Proceeds of export can be used to increase defence budget (~1.97%)

7) Ensure peace, security and freedom of navigation in Indian Ocean Region

8) Defence exports can help strike intelligence deals with other countries. Eg - COMCASA, GSMOIA.

Measures by government

1) Push for defence indigenization and modernization

Eg - Defence Acquisition Procedure 2020.

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2) Increased budget on defence R&D

Eg - 25% defence budget for R&D

3) Participation in DefExpo

⇒ Showcase India's defence capability

4) Encouraging private sector participation

Eg - iDEX scheme

5) Collaborating with partners for research and Technology sharing

Eg - Russia S-400, Israel Barak Missile

6) Creation of Defence Modernization Fund under Public Accounts of India

7) Corporatization of ~~Ord~~ Ordnance Factory Board

Challenges like lack of funds, technology adaptability and private sector dis-interest needs to be dealt with to achieve Atmanirbhartta in defence.

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GENERAL STUDIES (TEST CODE : 2418)

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INDEX TABLE

Q. No.	Maximum Marks	Marks Obtained
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3	10	
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9	10	
10	10	
11	15	
12	15	
13	15	
14	15	
15	15	
16	15	
17	15	
18	15	
19	15	
20	15	

Total Marks Obtained:

Remarks:

INSTRUCTIONS

1. Do furnish the appropriate details in the answer sheet (viz. Name, Registration Number and Test Code).
   उत्तर पुस्तिका में सूचनाएं भरना आवश्यक है (नाम, प्रश्न-पत्र कोड, विद्यार्थी क्रमांक आदि)।
2. There are **TWENTY** questions printed in **HINDI & ENGLISH**
   इसमें बीस प्रश्न हैं **हिन्दी और अंग्रेजी** में छपे हैं।
3. **All questions are compulsory.**
   सभी प्रश्न अनिवार्य हैं।
4. The number of marks carried by a question/part is indicated against it.
   प्रत्येक प्रश्न/भाग के अंक उसके सामने दिए गए हैं।
5. Answers must be written in the medium authorized in the Admission Certificate, which must be stated clearly on the cover of this Question-Cum-Answer (QCA) Booklet in the space provided. No marks will be given for answers written in medium other that the authorized one.
   प्रश्नो के उत्तर उसी माध्यम मे लिखे जाने चाहिए जिसका उल्लेख आपके प्रवेश पत्र में किया गया है और उस माध्यम का स्पष्ट उल्लेख प्रश्न सह-उत्तर (क्यूसीए) पुस्तिका के मुख्य पृष्ठ पर अंकित निर्दिष्ट स्थान पर किया जाना चाहिए। उल्लिखित माध्यम के अतिरिक्त अन्य किसी माध्यम में लिए गए उत्तर पर कोई अंक नहीं मिलेंगे।
6. Word limit in questions, if specified, should be adhered to.
   प्रश्नों में शब्द सीमा, जहाँ विनिर्दिष्ट है, का अनुसरण किया जाना चाहिए।
7. Any page or portion of the page left blank in the Question Cum-Answer Booklet must be clearly struck off
   उत्तर पुस्तिका में खाली छोड़ा हुआ पृष्ठ या उसके अंश को स्पष्ट रूप से काटा जाना चाहिए।

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EVALUATION INDICATORS

1. Contextual Competence
2. Content Competence
3. Language Competence
4. Introduction Competence
5. Structure - Presentation Competence
6. Conclusion Competence

Overall Macro Comments / feedback / suggestions on Answer Booklet:

1.

2.

3.

4.

5.

6.

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All the Best

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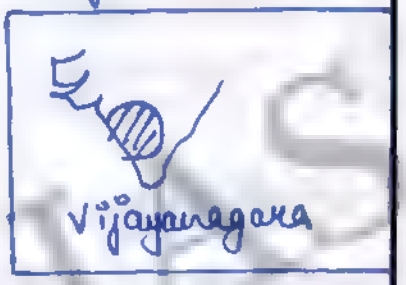
1. विजयनगर साम्राज्य की मूर्तियों में अन्तर्निहित प्रमुख लक्षणों का सविस्तार वर्णन कीजिए।

Elaborate on the key traits inherent to the sculptures of the Vijayanagara Empire. (Answer in 150 words) 10

Vijayanagara empire flourished in Deccan region (Modern Day Karnataka) in 14th-16th century and brought about several innovations in sculpture art.



Key traits of Vijayanagar sculpture

1) Use of metals was prevalent
Eg - Statue of Krishna deva raya with two queens is made of metals

2) Sculpture making progressed from lost-wax technique (during Cholas) to metal casting technique

3) Sculptures were made in long-form portraits. Eg - Lepakshi temple portraits

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4) Both 3-D sculptures and sculptures on wall relief were made.

Eg- Sculptures on walls of Virupaksh Temple

5) New forms of sculptures came up.

Eg- Chariots in Hampi

6) Religious themes were portrayed through sculptures.

Eg- Ramayana Jatayu sculpture in Virbhadra Temple

7) Size of sculptures increased drastically showing grandeur

8) Influence of Islamic features.

Eg- Due to Bijapur sultanate in proximity.

Vijayanagar empire was the epitome of architecture and sculpture in Medieval India ⇒ UNESCO World Heritage Sites in Hampi-

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2. महिला क्रांतिकारियों ने भारतीय स्वतंत्रता संघर्ष में साहसिक और अविस्मरणीय योगदान दिया है। चर्चा कीजिए।

Women revolutionaries made brave and unforgettable contributions to the freedom struggle in India. Discuss. (Answer in 150 words) 10

Indian freedom struggle was an inclusive movement for independence with participation of peasants, workers, students, industrialists and most importantly women.

Brave and unforgettable contributions

1) Participation in violent revolutionary activities. Eg- Pratilata Waddedar in Chittagong Armory Raid

2) Individual heroic activities to instil terror among British
Eg- Beena Das, Shanti Ghosh assassination attempts

3) Participation in underground revolutionary activities during Quit India Movement.
Eg - Usha Mehta, Aruna Asaf Ali

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4) Participation in armed conflict against British
Eg- Captain Lakshmi Swaminathan in Azad Hind Fauz

5) Involvement in numerous revolutionary activities.
Eg- Sheltering freedom fighters
- Delivering secret messages, spying

6) Participation in Gandhian movements
Eg- Sarojini Naidu in breaking salt law at Dharasana Salt works 1930.

7) Communist movements against British.
Eg- Nalini Gupta

8) Presided over INC sessions.
Eg- Sarojini Naidu

9) Political propaganda against British.
Eg- Annie Besant Home Rule

10) Foreign activities. Eg- Bhikhaji Cama (Paris)
Women were always at forefront of freedom struggle and also after independence in various movements

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3. चर्चा कीजिए कि अंग्रेजो द्वारा भारत में अंग्रेजी शिक्षा की शुरुआत ने किस प्रकार देश में उपनिवेशवाद विरोधी प्रवृत्ति को मजबूत करने में सहायता प्रदान की है।

Discuss how the introduction of English education in India by the British helped strengthen anti-colonialism in the country. (Answer in 150 words) 10

Anti-colonialism in India was partially a result of British policies and partially a response to British policies. Policy of English education by Bentick in 1835 and Macaulay in 1853 were manifestations of this.

English education ⟹ Anti colonialism

1) Rise of educated, western ideas among intelligentsia

Eg - Dadabhai Naroji

2) In-depth analysis of British policies by English educated Indians.

Eg - 'Drain Theory' by Naroji.

3) Propagation of national ideology among leaders from different linguistic backgrounds. Eg - English acted as a

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common binding language.

4) Productive participation in Council debate ⇒ Scrutiny of British policies like Council Act

Eg – Gokhale used councils to debate various issues

5) Response to imposed westernization

Eg – Replacement of Persian as court language by Bentick ⇒ Grievances ⇒ Anticolonialism

6) English acted as channel of fruitful negotiations between Englishmen and British. Eg – Round Table conference

7) Inculcation of western, liberal ideas of democracy and Parliament through English education.

Despite no intention by British to inculcate anti-colonial ideas, English acted as a catalyst to the freedom struggle.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

4. 20वीं सदी के अंत में सोवियत संघ के विघटन का भारत पर दूरगामी प्रभाव पड़ा है। चर्चा कीजिए।

The disintegration of the Soviet Union in the late 20th century had a profound impact on India. Discuss. (Answer in 150 words) 10

USSR disintegrated in 1991 due to multiple internal and external factors, ending the cold war with victory of capitalist western block.

Reasons behind disintegration

1) Economic stagnation in USSR
Eg- Falling agricultural production and rising prices

2) Reforms introduced by Gorbachev
Eg- Glasnost, Peretroika

3) Fall of communist regimes.
Eg - Poland, Bulgaria

4) Popular movements in multiple USSR allies.
Eg - Hungary

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Profound impact on India

1) India had to fine-tune her foreign policy to give more space to western block. Eg- Negotiations with IMF started

2) Economic reforms as USSR could no longer support India's closed economy. Eg- LPG reforms 1991

3) Disillusionment with USSR's socialist model of economy. Eg- shift to a mixed economy model

4) Rise of new liberal democracies in near proximity of India. Eg- Eastern European countries

5) Increased impact of USA in India's neighbourhood. Eg- Afghanistan.

Post Cold war era led to a unipolar world led by USA with increased socio-economic and cultural impact of West on India and world.

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5. मौजूदा मुद्दों को ध्यान में रखते हुए, भारत में शहरी अवसंरचना और परिवहन (मोबिलिटी) सेवाओं में सुधार की आवश्यकता पर लैंगिक दृष्टिकोण से चर्चा कीजिए।

In view of the prevailing issues, discuss the need for reforming the urban infrastructure and mobility services in India through a gender lens. (Answer in 150 words) 10

Urban areas comprise of ~35% population and contribute to ~65% of India's GDP.

Need for reforming urban infrastructure

1) Urban infrastructure is highly ~~pol~~ polluting and eco-unfriendly

Eg - 75% of Greenhouse gas

2) Non-convenient to women.

Eg - Women safety is compromised in buses, trains. Eg - Nirbhaya case

3) Non-availability of basic urban amenities for transgenders.

Eg - No separate toilets in public places.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

4) Lack of late-night mobility services for women to ensure safety.
Eg- late night women buses and cabs.

5) lack of creche services and child-care services close to place of work.

Measures needed

1) Investment in separate washrooms, creche services for women and transgenders
Eg- Swachh Bharat Mission goals

2) Creation of women-friendly mobility services. Eg- Separate areas in buses similar to metro trains

3) Safe and secure public spaces like parks. Eg- AMRUT

4) Regular police patrolling.

Inclusive urban infrastructure is crucial to achieve SDG 5 of women empowerment.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

6. भारत में, 2011-21 में वृद्धजनों की जनसंख्या की वृद्धि दर सामान्य जनसंख्या की वृद्धि दर से लगभग तीन गुना थी। इस संदर्भ में, चर्चा कीजिए कि वृद्धजनों हेतु नीतियों का निर्माण भारत के समग्र विकास के लिए एक महत्वपूर्ण पहलू क्यों है।

In India, the rate of growth of elderly population in 2011-21 was about three times the rate of growth of the general population. In this context, discuss why policies for the elderly are a crucial aspect for India's overall development. (Answer in 150 words) 10

Rate of growth of elderly population in FY21 was ~36% which was 3X of general population growth ~13%.

Need for better policies

1) Increased government expenditure on elderly welfare.

Eg- Vaay Vandana Yojana

2) Feminization of old age

Eg- 7 crore female elderly, compared to 6.5 crore males.

⟹ Social, economic and health issues

3) Increasing crimes against elderly

Eg - Rohini murder case

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4) Increasing isolation and depression
Eg - 8% suicides in India

5) Poor access to affordable health care.
Eg - 85% non-communicable diseases
⟹ Disproportionate impact on elderly.

Reforms needed

1) Welfare measures
Eg - Pension schemes (NPS)
2) Old-age homes for neglected elderly
3) Legal protection for from abandonment from children.
4) Financial empowerment through skill development. Eg - PMKVY.

Integration with mainstream is crucial to empower elderly people.

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(इस भाग में कुछ ना लिखें)

7. यद्यपि वैश्वीकरण मानवाधिकारों के उल्लंघन के लिए कथित तौर पर जिम्मेदार है, तथापि यह मानवाधिकार आंदोलनों को इसके अतिक्रमण और नकारात्मक प्रभावों का मुकाबला करने की अनुमति देता है। प्रासंगिक उदाहरणों के साथ सविस्तार वर्णन कीजिए।

While globalisation is allegedly responsible for human rights violations, it allows human rights movements to counter its excesses and negative effects. Elaborate with relevant examples. (Answer in 150 words) 10

Globalization is the large scale movement of people, capital and ideas across borders. It has created benefits and challenges such as human rights violations.

Responsible for human rights violation

1) Persecution of migrants in host countries.

Eg- Expulsion of Muslim refugees in Poland, Myanmar Rohingyas

2) Armed protests by migrants in Europe. Eg - France riots

3) Increased invasion of poor

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countries by rich countries.
Eg- US invasion of Afghanistan

4) Use of social media (product of globalization) to provoke riots.
Eg- Delhi riots 2020.

Movements to counter

1) Free flow of ideas to counter human right violations.
Eg- Global condemnation of Israeli activities in Gaza.

2) Spread of peaceful protests through social media. Eg- CAA protests

3) Increased transparency and accountability of government. Eg- Gujarat riots.

Globalization is a double-edged sword and can be used to provoke and prevent violations.

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8. हिमालय की वर्तमान अपवाह प्रणाली काफी हद तक क्रमिक नदी अपहरण का परिणाम है। चर्चा कीजिए।

The present drainage system of the Himalayas is, to a great extent, the result of progressive river piracy. Discuss. (Answer in 150 words) 10

Himalayan drainage system is suffering from multiple challenges of reduced river flow etc. that has caused water insecurity.

Present condition

1) Reduced navigability due to low volume. Eg- Yamuna

2) Siltation of rivers. Eg – Indus river

3) change in river course.
Eg- Kosi river

4) Poor water quality. Eg- Ganga at Kanpur coast.

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Result of river piracy

1) Reclamation of Terai region for settlements ⟹ Encroachment of wetlands
Eg- UP, Bihar

2) Concretization of green belts and water bodies

3) Establishment of industries, factories at coast ⟹ Pollution
⟹ Poor quality.
Eg- Tanneries in Kanpur

4) Agricultural emissions ⟹ Poor quality of water ⟹ Hypoxic zones
Eg- Western UP, Punjab

5) Groundwater overexploitation ⟹ Water table reduces

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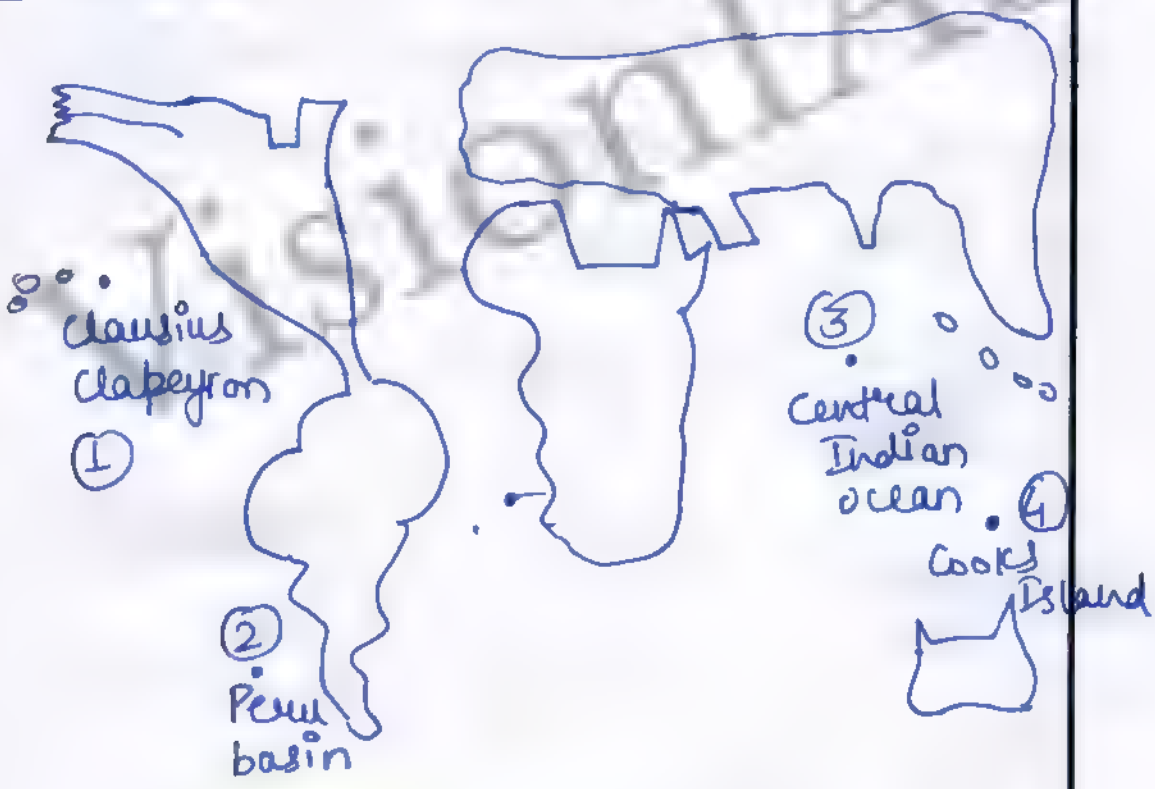
9. बहुधात्विक ग्रंथिकाओं (पॉलिमेटेलिक नोड्यूल्स) के भौगोलिक वितरण का उदाहरण प्रस्तुत करते हुए, उनके महत्व पर चर्चा कीजिए।

Illustrate the geographical distribution of polymetallic nodules and discuss their significance. (Answer in 150 words) 10

Polymetallic nodules are minerals rich in Manganese and Iron in concentric layers around its core. These are found in 70% sea bed globally, but concentrated in certain hubs.



Geographical distribution of Polymetallic nodules

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Significance

1) Important source of manganese and iron.
Eg- Crucial in electronics and manufacturing industries

2) Source of other minor minerals.
Eg- Zinc, Lead

3) Lifeline of economic development in countries that exploit these resources.
Eg- Peru is highly dependant on these

4) Cutting edge technology.
Eg- Lithium, silicon also found here.

Challenges
- Jurisdiction of International Seabed Authority
- Lack of technology and finance
- Threat to marine biodiversity

India has been granted permission to explore Polymetallic Nodules in Indian ocean ⇒ $5 trillion economy

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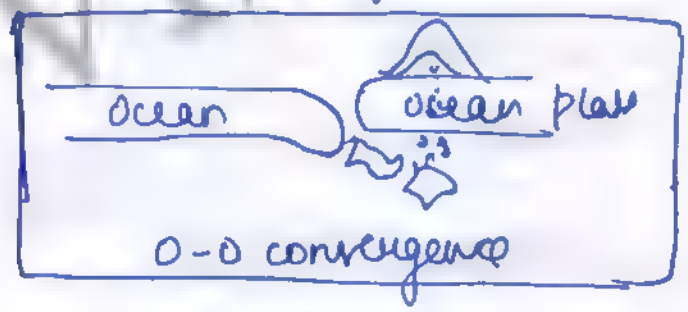
10. द्वीपसमूह से आप क्या समझते हैं? इनके निर्माण में शामिल विभिन्न प्रक्रियाओं को उदाहरण सहित समझाइए।

What do you understand by archipelagos? Explain the different processes involved in their formation, with examples. (Answer in 150 words) 10

Archipelagos are groups of tecto-volcanic islands formed due to endogenic distrophic processes inside Earth.

Process of formation

1) Ocean-ocean convergence
> Subduction of denser plate
> Rise of magma
> Formation of volcanic island arcs



> when multiple ocean plate convergence happens, it forms archipelago
Eg- Hawaii islands

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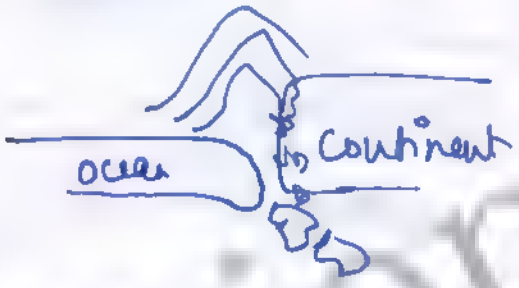
2) Ocean-continent convergence

> Subduction of ocean plates

> Creation of tectonic islands

> Due to intense pressure, multiple islands forms ⟹ Archipelago.

Eg- Indonesia (Burma plate)



Ocean-continent

3) Hotspot archipelago

> Mantle plume creates islands chains. Eg- Reunion Islands.

4) Volcano induced archipelago.

These archipelagoes are important tourist sites and are also vulnerable to different climate challenges like sea level rise.

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11. भारत में जनजातीय और लोक कलाएं अपने अस्तित्व को बनाए रखने हेतु आधुनिक युग की कई चुनौतियों का सामना कर रही हैं। चर्चा कीजिए। साथ ही, इस संबंध में सरकार द्वारा प्रारंभ की गई विभिन्न पहलों को रेखांकित कीजिए।

Tribal and folk arts in India are confronting several challenges of the modern age in a bid to survive. Discuss. Also, highlight the various initiatives taken by the government in this regard. (Answer in 250 words) 15

Tribal and folk arts refer to those art forms that have been propagated through generations through folklore and verbal medium primarily and ~~are~~ are an engrained part of Indian culture and heritage.

Challenges being faced

1) Decline in practice of these art forms due to verbal nature

Eg- Disappearance of multiple languages of tribals. Eg- Mitei language

2) Lack of audience due to increasing influence of global artforms

Eg- Pop culture

3) Lack of exhibition avenues and government patronage

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4) Restrictions of geography.

Eg- Tribals tend to reside isolated

⇒ Less propagation

5) Less financial resources to promote folk culture internationally.

6) Less interest of film-makers, art patrons, despite immense potential.

Eg- Kantara movie success shows potential of folk culture, still less investment

Government initiatives

1) Promotion of tourism in tribal areas to increase awareness

Eg- Swadesh Darshan, Know India

2) Trade fairs to exhibit tribal handicrafts and art forms

Eg- Tribal Haat by TRIFED.

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3) Digitization drive to bring these artforms on digital platforms

4) Promotion of artists involved in these artforms through awards.
Eg- Karnataka Bidri artist awarded Padma Shri

5) Promotion of folk dancers and musicians by ICCR and Sahitya Academy
Eg- Madhubani painters
- Garba dancers

Way forward

1) Financial investment to improve training and development of artforms
2) Promotion of artforms on global stage. Eg- Indian embassies can promote these artforms abroad

Tribals are integral contributors to India's folk heritage and must be encouraged

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12. भारतीय शास्त्रीय नृत्यों की विशिष्ट विशेषताओं पर प्रकाश डालिए। साथ ही, चर्चा कीजिए कि ये नृत्य किस प्रकार आध्यात्मिकता की अभिव्यक्ति हैं।

Highlight the distinguishing features of Indian classical dances. Also, discuss how these dances are a manifestation of spirituality. (Answer in 250 words) 15

Indian classical dances are those dance forms that derive their features and style from ancient literature like Natyashastra and are recognized by the National Academy.

Distinguishing features

1) Influenced from religious texts and incidents.

Eg- Kathakali narrates incidents from Ramayana

2) Different emotions of or 'Rasas' are expressed

Eg- Lasya Ras (Kuchipidi)

- Tandav Ras

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3) Focus on both facial movements and hand gestures.

Eg - Kathakali focuses on facial expression
- Odishi focuses on hand movements

4) Performed by both male and females in groups and solo.

Eg - Bharatanatyam ⇒ Solo | Mainly women
- Odishi ⇒ Groups/solo | Children, women → Gotipuas

5) Use of heavy makeup and props

Eg - Jal tarang in Kuchipidi

6) Combine 3 different artforms

> Nritya - Dance
> Natya - Drama/Theatre
> Sangeet - Use of musical instruments
↳ Sarangi
↳ Pakhawaj etc.

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Manifestation of spirituality

1) Evolved from temple traditions
Eg- Bharatnatyam from Devadasi culture

2) Use of religious songs
Eg- Manipuri Sankirtana

3) Portrayal of Gods through dance
Eg- Mohiniattam portrays Vishnu in Mohini form

4) Describes various spiritual and religious incidents. Eg- Ramayana

5) Begins and ends with tribute to gods. Eg- Kathakali, Kuchipidi

Indian classical dances are source of intangible cultural heritage and soft power for India.

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13. चौरी-चौरा की घटना द्वारा भारतीय स्वतंत्रता संघर्ष की गति को कुछ समय के लिए धीमा कर देने के बावजूद, असहयोग आंदोलन भारतीय स्वतंत्रता संघर्ष के इतिहास में एक निर्णायक मोड़ के रूप में बना रहा है। चर्चा कीजिए।

Despite the Chauri Chaura incident slowing down the momentum of Indian freedom struggle for a while, the Non-Cooperation Movement remains a watershed in the history of the Indian freedom struggle. Discuss. (Answer in 250 words) 15

Non-cooperation Movement was launched by Gandhi in 1920 against Punjab wrongs by the British and Khilafat issue

Features of Non-cooperation Movement

1) Boycott of British products and institutions. Eg - Schools, courts

2) Minimizing any sort of cooperation with the British. Eg - Non payment of taxes

3) Constructive work. Eg - Hindu-Muslim unity, campaign against untouchability

4) Strong emphasis on non-violence. Eg - Peaceful protests, agitations, picketing

5) Bonfire of British clothes.

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Impact of Chauri Chaura incident

1) Growth of violence in the movement.
Eg- Burning of police station in Chauri Chaura
2) Withdrawal of movement by Gandhi
3) Realization of more training of Indians in non-violent methods
Eg- Emphasis on constructive work by No-changers
4) Disappointment of extremists and revolutionaries. Eg- Initiated phase 2 of revolutionary movement

Watershed in history

1) First organized mass struggle by Gandhi. Eg- Started by INC proclamation
2) Participation of all sections of society. Eg- Peasant, workers, women

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3) Brought women in public life and movements. Eg- Picketing by women
- Role of Annie Besant

4) Maximum Muslim participation
Eg- Khilafat issue brought Muslims under freedom movement

5) First application of Gandhian tools of Satyagraha, Boycott at a mass level.

6) Creation of social harmony through constructive work.

Challenges
- Also led to communalization due to religious issue for freedom movement
- Industrialists formed an Division of INC - Swarajists and Non-Cooperation Council

Despite all setbacks, Non cooperation movement set stage and prepared masses for Civil Disobedience.

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14. शिक्षा और विदेशी मामलों के क्षेत्र में डॉ. सर्वपल्ली राधाकृष्णन के योगदान को वर्णित कीजिए।

Bring out the contributions of Dr. Sarvepalli Radhakrishnan in the fields of education and foreign affairs. (Answer in 250 words) 15

Dr Sarvepalli Radhakrishnan was the 2nd President of India.

Education

1) Teacher's day celebrated in his honour.

2) Focus on first National Education Policy

3) Shift to mass education post independence.

Eg- 11% literacy at independence

4) Established UGC.

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(इस भाग में कुछ ना लिखें)

Foreign affairs

1) Supreme commander of India's armed forces during war with Pakistan.

2) Panchasheel program

3) Non-Aligned movement

4) Negotiations with China during Tibet invasion

VisionIAS

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VisionIAS

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15. कृषि के नारीकरण को प्रेरित करने वाले कारकों को सूचीबद्ध कीजिए तथा इसके प्रभावों पर चर्चा कीजिए। साथ ही, उन तरीकों का भी वर्णन कीजिए जिनके माध्यम से महिलाओं को इस संदर्भ में सशक्त बनाया जा सकता है।

Enumerate the factors driving feminization in agriculture and discuss its effects. Also, state the ways in which women can be empowered in this regard. (Answer in 250 words) 15

Feminization in agriculture refers to increasing participation of women in agricultural and allied activities. In India, ~94% of rural women are involved in agriculture (Agricensus 2015-16)

Factor driving feminization

1) Migration of men to urban areas for employment. Eg - 35% population lives in urban areas

2) Need of cheap, semi-skilled workforce in agriculture.

Eg - 70% livestock farmers are women
- 30% dairy farmers are women.

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3) Lack of non-agricultural women oriented employment in villages.
Eg- 90% people in rural areas dependant on agriculture

4) Lack of education, skill training and awareness among women → forced into underpaid agriculture labour activities

Effects of feminization

1) Positive effects
i) Participation of women in economic activities
ii) Awareness and organization of women.
Eg- Kudumbashree SHG in Kerala
iii) Self-confidence and empowerment

2) Negative effects
i) Lack of ownership of land
Eg. Only 13% land owned by women (Agri census 2015-16)

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ii) Mostly involved in agriculture labour activities ⟹ Informal employment

iii) No participation in decision-making
Eg - Very few women in irrigation committee, Panchayats

iv) Lack of women-oriented machines and equipment. Eg - Tractors designed for men.

Measures needed

1) Involvement in decision making process through awareness, literacy
Eg - Agriculture extension services

2) Financial empowerment by bank lending. Eg - MUDRA Yojana
- Jan Dhan Yojana

3) Data aggregated on gender basis
Eg - Agristack

4) Land ownership to be increased.

5) Skilling in value-addition and agri entrepreneurship. Eg - READY scheme

Female empowerment is crucial to achieve SDG 5 of gender equality.

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16. भारत में, आत्महत्या 15-29 आयु वर्ग के लोगों में मृत्यु के प्रमुख कारणों में से एक बन गई है। इसके लिए उत्तरदायी कारणों को स्पष्ट करते हुए, राष्ट्रीय आत्महत्या रोकथाम रणनीति के प्राथमिकता प्राप्त क्षेत्रों पर चर्चा कीजिए।

In India, suicide has become one of the leading causes of death among those aged 15-29. Bringing out the reasons behind the same, discuss the priority areas of the National Suicide Prevention Strategy. (Answer in 250 words) 15

According to WHO, ~36% people in India are suffering from some kind of mental issues like depression that has made India home of ~8% suicides in the world.

Reasons behind increasing suicides

1) Change in lifestyle
Eg- Junk food, poor work-life balance etc ⇒ 65% non-communicable diseases like cancer, depression etc.

2) Pressure of increased career competition. Eg ~7% unemployment

3) Change in family structure
Eg- Decline in joint family has led to

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poor primary socialization and emotional support system.

4) Financial crises in agriculture sector

Eg- Indebtedness (~50% Households) in rural areas is leading cause of suicides.

5) High burden of expectations on children from young age

Eg- High incidence of suicides in IITs.

6) Lack of education and discussion among Indians about mental health

Eg- Psychiatrists are still seen as taboo in India.

Hence, there is a need of

National Suicide Prevention Strategy

1) Promote discussion about Mental Health issues, especially among Men.

Eg- Government suicide helpline reported maximum calls from men.

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2) Awareness among families and new generation through IEC campaigns.
Eg- 'We listen' campaign

3) Immediate support system.
Eg- Manodarpan helpline

4) Comprehensive policy and guidelines
Eg- Mental health Policy 2017
↳ Implementation of guidelines

5) Access to medical support in times of emergency
Eg- Database of legitimate mental health practitioners.

Suicides are the biggest threat to India's demographic dividend and must be addressed by awareness and medical interventions.

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17. विश्व भर में पाए जाने वाले विभिन्न प्रकार के मरुस्थलो के निर्माण की व्याख्या करते हुए, उनका विवरण प्रस्तुत कीजिए और उनकी विशेषताओं का उल्लेख कीजिए।

Explaining their formation, provide an account of the various kinds of deserts found across the world along with their characteristics. (Answer in 250 words) 15

Deserts are dry landscapes formed when rate of evaporation in an area is more than rate of precipitation. India has ~30% of landmass under deserts (ISRO).

Types of deserts → Hot deserts, Cold deserts

1) Sub-tropical deserts (Hot)

> Due to subsiding high-pressure winds in sub-tropical pressure belts (~30° N/S)

> offshore winds also aids formation of such deserts. Eg - Mojave desert, Sahara

> Characterised by sandy and rocky landscape with strong winds.

2) Deserts on western coast of tropics (Hot)

> Formed due to offshore trade winds

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and cold currents ⟹ Dessicating effect

> Characterised by cool weather, but dry atmosphere. Eg- Namib desert due to Benequela current, Atacama desert due to Peru current

3) Leeward side of mountains (Hot & cold)

> Formed due to lack of rain-bearing clouds in leeward side

> characterised by dry landscape, short trees and thorny vegetation

Eg- Patagonia desert (Andes mountain)

4) Continental desert (Hot & cold)

> Due to lack of rain in interiors of continents

> Characterised by vast areas of short vegetation and adaptations in animals. Eg - Gobi desert (Mongolia)

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(इस भाग में कुछ ना लिखें)

5) Cold deserts at high altitude

> Formed due to poor rainfall at high mountains

> characterised by snowcover, very less vegetation and wildlife – Eg: Moss, lichens

> Eg – Ladakh.

Deserts of world

There is need to control rapid desertification of landmass and protect biological productivity of soil.

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18. भू-सचलन के कारण निर्मित झीलो का संक्षिप्त विवरण देते हुए, झीलों के आर्थिक और पारिस्थितिक महत्व पर चर्चा कीजिए।

Giving a brief account of the lakes formed due to Earth's movement, discuss the economic and ecological significance of lakes. (Answer in 250 words) 15

Lakes are aquatic ecosystems or wetlands formed due to multiple endogenic and exogenic processes and have immense economic and ecological significance.

Formation of lakes

1) Continent-continent divergence
Eg- Rift valley lakes in Africa, Dead Sea
↳ lake Tanganyika, Nyasa

2) Formation of lowlands due to isostatic and eustatic processes ⟹ Filling up of water
Eg - Sambhar lake

3) Caldera lakes due to vulcanism
Eg- lake Titicaca (Argentina)

4) Erosion and deposition lakes due to

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movement of water bodies. Eg – Ox bow lakes
→ Lake Kabartaal

5) Other processes
→ Man-made lakes. Eg – GB Pant Sagar
→ Meteor lakes. Eg – Lonar lake

Economic significance

1) Inland fishing by coastal communities
Eg – ~60% of India's fishing

2) Source of multiple natural products
Eg – Timber from mangroves

3) Medicinal plants, flowers etc

4) Protects coastal infrastructure by absorbing excess water
Eg – Bridges.

5) Islands formed in certain lakes provide settlement
Eg – Phumdis in Loktak lakes

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6) Rice cultivation, Aquaculture, Shrimp farming

Ecological significance

1) Reduce urban floods by absorbing excess water. Eg – Mumbai floods 2005

2) Habitat for various aquatic organisms. Eg – Fish, shrimp

3) Filter contaminants in water.
Eg – Heavy metals by water hyacinth
→ Kidneys of water bodies

4) Stabilizes coasts. Eg – Pneumatophores in mangroves

5) Regulate micro-climate of the region.
Eg – Urban heat islands

Preservation of lakes is very important to achieve SDGs of ~~to~~ 'Life on land' and 'Life ~~before~~ below water'

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19. भारत के पास 1,80,000 मेगावाट महासागरीय तापीय ऊर्जा उत्पादित करने की क्षमता है, हालांकि, इस दिशा में प्रगति धीमी रही है। इस संदर्भ में, संबंधित चुनौतियों को रेखांकित कीजिए और सुधारात्मक उपायों का सुझाव दीजिए।

India has the potential to generate 180,000 MW of ocean thermal energy, however, progress in this regard has been slow. In this context, highlight the associated challenges and suggest remedial measures. (Answer in 250 words) 15

Ocean thermal energy is a renewable non-conventional form of energy that utilizes temperature difference (~20°C) between surface water and deep water to produce energy.

Status in India

1) Few energy generation plants have been set up.
Eg- Kadmat, Kavaratti in Lakshadweep
- Chennai OTEC plant

2) Collaboration of Israel to set up more plants

3) Promotion of domestic Research & Development. Eg - CSIR, Bhubaneswar

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4) Total potential of 180 GW from 7500 km coastline and 2 lakh km^2 continental shelf.

Challenges with progress

1) High capital cost and long-term gestation period. Eg- Technology

2) Need of skilled workforce and scientific research. Eg- Only <1% budget spent on Research in India

3) Impact on marine biodiversity due to setting up of plants
Eg- Coral bleaching

4) Policy paralysis. Eg- More focus on solar and wind energy.
⟹ ISA, Green Grids initiative

5) Lack of domestic technology.
Eg- Import from Israel.

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6) Uncertain capacity utilization.

Remedial measures

1) Comprehensive policy around ocean thermal energy
Eg- Targets, Plan of Action and timelines to be laid out

2) Encourage indigenous research and manufacture. Eg- Budgetary outlay
- ~ 3% of GDP recommended

3) Proper EIA to be done

4) Integration with other programs for optimization of finances. Eg- Deep ocean Mission

5) Cross-country collaboration with other littoral neighbours. Eg- Sri Lanka.

6) Skilling of workforce in new-age renewable technology

Ocean Thermal Energy can help India achieve its NDC of increasing non-fossil power capacity of 50% and Paris commitments

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20. भारत में प्राकृतिक गैस हाइड्रेट्स की उपलब्धता का वर्णन करते हुए, उनके महत्व के साथ-साथ उनके अन्वेषण से जुड़ी चुनौतियों पर चर्चा कीजिए।

Bringing out the availability of natural gas hydrates in India, discuss the promise as well as the challenges associated with their exploration. (Answer in 250 words) 15

Natural gas hydrates are methane deposits covered within water molecules that can be used for multiple energy and economic activities.

Availability

1) Krishna-Godavari Basin
2) Assam Arakan
3) Bombay offshore
4) Gulf of Khambat
5) Gulf of Mannar

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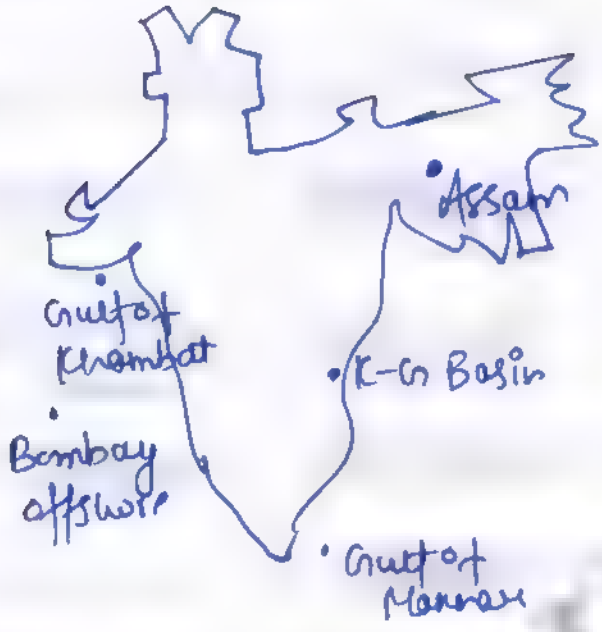

Promises

1) Energy security

Eg- CNG, PNG, LPG

2) Reduce energy import bill

Eg- CAD = 1.6% of GDP

3) Reduce carbon emission

Eg- India has 50% coal dependence for electricity

4) Blue methane . Eg- Steam reforming

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Challenges

1) High capital cost

2) Lack of technology for harnessing. Eg- Fractional distillation

3) Focus on crude oil for development needs.

4) Lack of knowledge about concentration of hydrates and efficiency.

5) Impact on biodiversity.

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20 AUG 2023

GENERAL STUDIES (TEST CODE : 2420)

Name of Candidate	HRITWIK RANJAN		
Medium Eng./Hindi	ENGLISH	Registration Number	1085424
Center		Date	

INDEX TABLE

Q. No.	Maximum Marks	Marks Obtained
1	10	
2	10	
3	10	
4	10	
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9	10	
10	10	
11	15	
12	15	
13	15	
14	15	
15	15	
16	15	
17	15	
18	15	
19	15	
20	15	

Total Marks Obtained:

Remarks:

INSTRUCTIONS

1. Do furnish the appropriate details in the answer sheet (viz. Name, Registration Number and Test Code).
   उत्तर पुस्तिका में सूचनाएं भरना आवश्यक है (नाम, प्रश्न–पत्र कोड, विद्यार्थी क्रमांक आदि)।
2. There are **TWENTY** questions printed in **HINDI & ENGLISH**
   इसमें बीस प्रश्न हैं हिन्दी और अंग्रेजी में छपे हैं।
3. **All questions are compulsory.**
   सभी प्रश्न अनिवार्य हैं।
4. The number of marks carried by a question/part is indicated against it
   प्रत्येक प्रश्न/भाग के अंक उसके सामने दिए गए हैं।
5. Answers must be written in the medium authorized in the Admission Certificate, which must be stated clearly on the cover of this Question-Cum Answer (QCA) Booklet in the space provided. No marks will be given for answers written in medium other that the authorized one.
   प्रश्नों के उत्तर उसी माध्यम में लिखे जाने चाहिए जिसका उल्लेख आपके प्रवेश पत्र में किया गया है और उस माध्यम का स्पष्ट उल्लेख प्रश्न–सह–उत्तर (क्यूसीए) पुस्तिका के मुख्य पृष्ठ पर अंकित निर्दिष्ट स्थान पर किया जाना चाहिए। उल्लिखित माध्यम के अतिरिक्त अन्य किसी माध्यम में लिए गए उत्तर पर कोई अंक नहीं मिलेंगे।
6. Word limit in questions, if specified, should be adhered to.
   प्रश्नों में शब्द सीमा, जहाँ विनिर्दिष्ट है, का अनुसरण किया जाना चाहिए।
7. Any page or portion of the page left blank in the Question-Cum-Answer Booklet must be clearly struck off.
   उत्तर पुस्तिका में खाली छोड़ा हुआ पृष्ठ या उसके अंश को स्पष्ट रूप से काटा जाना चाहिए।

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EVALUATION INDICATORS

1. Contextual Competence
2. Content Competence
3. Language Competence
4. Introduction Competence
5. Structure - Presentation Competence
6. Conclusion Competence

Overall Macro Comments / feedback / suggestions on Answer Booklet:

1.

2.

3.

4.

5.

6.

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All the Best

Don't write anything this margin (इस भाग में कुछ ना लिखें)

1. भारत में राज्यों की राजकोषीय स्थिरता से संबंधित मौजूदा मुद्दों का परीक्षण कीजिए। इन मुद्दों के समाधान हेतु किन उपायों की आवश्यकता है?

Examine the persisting issues related to fiscal stability of states in India. What measures are needed to address these issues? (Answer in 150 words) 10

Concept of fiscal federalism gives fiscal autonomy ~~of~~ to states. Although it has empowered states in certain ways, it has also created some persisting issues

Issues on fiscal stability of states

1) Rising debt and fiscal deficit
Eg - 31% debt to GDP ratio (RBI data)

2) Shrinking pool of resources
Eg - 25% of Centre's gross tax revenue is cess which is not shared with states

3) Increasing expense on non-productive sectors. Eg - 35% of Telangana's revenue is spent on welfare measures

4) Populist schemes of states.
Eg - Old Pension scheme in Himachal
- Power subsidy in Punjab

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5) Stressed DISCOMs.

Eg- 60% of state government guarantees go to DISCOMs.

Measures needed

1) Compliance with prudent economic policies. Eg- New Pension scheme

2) Compliance with FRBM targets for States. Eg- Debt within 20%

3) Co-operative federalism with centre

Eg- Increase in states borrowing limit to 5% of GSDP by centre

4) Optimistic revenue prediction. Eg- 10% higher revenues predicted

5) Avoiding populist tendencies to ease pressure on DISCOMs.

Stability of state government finances is essential to achieve $5 trillion economy. NK Singh Committee recommendations must be considered.

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2. उत्पादन से संबद्ध प्रोत्साहन (PLI) योजना आत्मनिर्भर भारत के लक्ष्य की प्राप्ति हेतु सरकार की प्रकार सहायता कर सकती है? इसके उद्देश्यों को प्राप्त करने में आने वाली चुनौतियां क्या है?

How can the Production Linked Incentive (PLI) Scheme help in achieving an Atmanirbhar Bharat? What are the challenges in realizing its objectives? (Answer in 150 words) 10

PLI scheme is launched with the purpose of encouraging domestic production in certain selected sectors by incentivizing manufacturing and sales. Eg- Pharma sector

Helpful in achieving Atmanirbhar Bharat

1) Reduce import dependance.

Eg- API dependence on china reduced from 90% to 70% in 2 years

2) Strengthen domestic manufacturing

Eg- Improved food processing sector after inclusion in PLI

3) Support emerging and critical industries. Eg- Solar panel manufacture

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4) Promote foreign investment in domestic manufacturing sector.

Eg- FDI inflow reached ~85 billion dollars

5) Increase share of manufacturing in GDP. Eg - Currently ~ 25-30%

Challenges

1) High import dependence on China in multiple sectors. Eg- Electronics

2) Red-tapism in Indian manufacturing sector → Disincentivizes production

3) Cheaper imports of certain commodities Eg- Iron and steel

4) Lack of semi-skilled workforce Eg- 45% population in agriculture

5) Poor credit facility. Eg- ~6% NPAs

PLI scheme can help achieve objectives of Make in India and make India a manufacturing hub.

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3. जलवायु परिवर्तन में वृद्धि से मोटे अनाज की खेती का पुनरुद्धार किस प्रकार हो रहा है? भारत में मोटे अनाज के उत्पादन को बढ़ावा देने के लिए सरकार द्वारा क्या कदम उठाए गए हैं?

How is the advent of climate change leading to the revival of cultivation of millets? What steps have been taken by the government to give an impetus to millet production in India? (Answer in 150 words) 10

Millets are small grained hardy crops that have multiple health, environment and economic benefits Eg- Jowar, Bajra

Climate change → Millet cultivation

1) Can be grown in water stressed regions. Eg - Rajasthan, MP are leading producers

2) Have a higher shelf life than wheat and paddy. Eg - Can last upto 10 years if properly processed

3) Can grow on wastelands using less nutrients and fertilizers

4) Less prone to attack from pests. Eg- Increase in locust attack due to climate change.

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5) Does not cause strain on natural resources like wheat and paddy.

Steps by government

1) Inclusion in MSP procurement
⇒ Ensures return on investment

2) Initiatives at state level.
Eg- Odisha Millet Mission

3) R&D on HYV seeds of millets
Eg- Krishi Vigyan Kendra
- MIRA scheme

4) Awareness among public about benefits of millets.
Eg- National Year of Millets 2018

5) Promotion at international forums
Eg- International Year of Millets 2021

Millets can help achieve SDG 2 of removing hunger and SDG 4 of well being for all.

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4. चारे की खराब गुणवत्ता और उसकी अपर्याप्त उपलब्धता भारत में पशुधन की कम उत्पादकता के लिए उत्तरदायी प्रमुख कारण हैं। चर्चा कीजिए।
Poor quality and inadequate availability of feeds and fodder are the major reasons behind the low productivity of the livestock in India. Discuss. (Answer in 150 words) 10

Livestock sector contributes to ~30% of agriculture GVA. India is largest livestock owning country and ~65% rural population depends on this sector.

Low productivity
- → Less milk production per lactation Eg – only 1000 kg/lactation
- → Poor productivity of cattle. Eg – Amritmahal
- → Less fishery production compared to global standards

Reason – Poor feed and fodder

1) Lack of nutritious elements in fodder ⟹ Poor productivity

2) Poor feed decreases immunity to diseases. Eg – FMD disease
– Lumpy skin disease

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3) Highly methanogenic components in animal feed.

Eg- Causes enteric fermentation of food

4) Reduces quality of milk and meat.

5) using discarded agricultural crops as feed for animals.

Way forward

1) Adding essential micronutrients in animal feed. Eg- Harit Dhara feed

2) Scientific animal husbandry techniques

Eg- Rashtriya Gamdhenu Aayog

3) Avoiding use of chemicals and growth regulators.

Livestock sector can help improve farmer's income and achieve targets of PM 7- Point Program.

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5. एकीकृत कीट प्रबंधन (IPM) क्या है? IPM के उद्देश्यों पर प्रकाश डालते हुए, इसके विभिन्न घटकों पर चर्चा कीजिए।
What is Integrated Pest Management (IPM)? State its objectives and discuss its various components. (Answer in 150 words) 10

Integrated Pest Management refers to managing increased pest attack events by taking up agricultural practices that can counter the impacts of pest attacks with minimal use of chemical pesticides.

Objectives

1) Reduce impact of pest attack
2) Conserve quality of soil
3) Adopt nature-based solutions
4) Minimal use of chemicals
   Eg- Pesticides
   Weedicides

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Components

1) Conservation agriculture
↳ Less tilling can reduce pest incidence

2) Organic farming
↳ Use of compost, organic fertilizers

3) Natural farming
↳ Beejamrutham
↳ Jeevamrutham
↳ Waphasa
↳ Arachnedan

4) Using natural agents to control pests.
Eg- Preying mantis.
IPM can help reduce crop losses and increase farmer income.

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6. आपदा जोखिम न्यूनीकरण में अंतर्राष्ट्रीय सहयोग के महत्व की व्याख्या कीजिए। भारत ने आपदाओं को कम करने के लिए क्षेत्रीय सहयोग को मजबूत करने के लिए क्या पहल की है?

Explain the significance of international cooperation in disaster risk reduction. What initiatives has India taken to strengthen regional cooperation for reducing disasters? (Answer in 150 words) 10

Disaster risk reduction refers to ~~prevn~~ preventive measures in reducing risk of disasters by improving capacity and reducing vulnerability.

International co-operation

1) Cross-border impact of disasters.

Eg- Cyclones, Tsunamis

2) Financial and technological transfers for reducing risk

Eg- Early Warning System Program

3) Implementation of Policy

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frameworks -

Eg - Sendai framework

4) Creation of infrastructure from best practices

Eg - Japan's earthquake resilient infrastructure

Indian initiatives

1) CDRI for resilient infrastructure

2) Project Mausam

3) Project SAGAR

↳ Security for All includes disaster security

4) Disaster assistance through money, vaccines, medicines.

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7. अत्यधिक और अविवेकपूर्ण रेत खनन की पारिस्थितिक लागत इसके आर्थिक लाभों से कहीं अधिक है। संधारणीय रेत खनन के महत्व के संदर्भ में चर्चा कीजिए।
The ecological cost of excessive and indiscriminate sand mining far outweighs its economic benefits. Discuss in context of the importance of sustainable sand mining. (Answer in 150 words) 10

Sand mining is the practice of extracting sand from the bottom of rivers and oceans for economic purposes like construction. Eg- Sand mining in Yamuna river.

Ecological cost

1) Uncontrolled flow of river
Eg- Damages bridges on rivers, mangroves corals.
2) Coastal erosion and inundation
Eg- Encroachment of rivers in Chennai
3) Reduces ground water table
4) Destroys habitat of micro-organisms living in seabed. Eg- crabs
5) Salinization of agriculture land.
Eg- Increased salinity of Noida soil.

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Need of sustainable sand mining

1) Proper vigilence of illegal Sand mafias.

Eg - Illegal mining in UP.

2) Research on alternatives for construction.

Eg - m-sand, fly ash

3) Sand mining also deprives government ~~to~~ from revenues ⇒ Fiscal loss

4) Conservation of wetland ecosystem and biodiversity

Eg - 14% wetlands degraded

Government should come up with sustainable sand mining policy and enforcement mechanism to achieve SDG of 'life under water'.

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8. थिएटराइजेशन योजनाओं के पीछे निहित तर्क पर चर्चा कीजिए, जो भारत में रक्षा बलों को विशिष्ट थिएटर कमांड में एकीकृत करना है। इससे जुड़ी चुनौतियां क्या हैं?

Discuss the rationale behind theaterisation plans, which seek to integrate the defence forces into specific theatre commands in India. What are the associated challenges? (Answer in 150 words) 10

Theaterization is the method of arranging armed forces into geography based commands, consisting of all 3 forces in each theater command.

Rationale behind theaterization

1) Tackle emerging security threats that need an overall 'whole-of-the army' approach Eg- 2 front war

2) Improve synergy between different forces. Eg - Terrestrial, naval and air capabilities

3) Adopt international best practices Eg- China, USA use this.

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4) Currently, India has 1 theater command in Andaman and Nicobar

⟹ Natural extension of theater commands

5) Recommended by Kargil war Committee 1999.

Challenges

1) May cause friction between 3 armed force chiefs

2) Declining expense on armed forces.

Eg- ~1.97% of budget

3) Difficulty in synergyzing multi-dimensional capacities

Eg- May make it bulky.

Theatorisation can be helpful in improving efficiency and countering new age challenges.

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9. व्याख्या कीजिए कि धन शोधन (मनी लॉन्ड्रिंग) के लिए शेल कंपनियों का उपयोग कैसे किया जाता है। भारत में धन शोधन के लिए शेल कंपनियों के उपयोग को रोकने के लिए क्या कदम उठाए गए है?

Describe how shell companies are used for money laundering. What steps have been taken to curb the use of shell companies for money laundering in India? (Answer in 150 words) 10

Shell companies are companies formed on-paper that do not perform any economic activities and are mainly used for tax evasion and money laundering

Shell companies for money laundering

1) Companies divide their profit into small chunks and park it with shell companies, showing them as expenses. Eg- R&D, Purchase expense

2) These companies may be located outside national jurisdiction which reduces tax liability ⟹ laundering

3) This money can be re-routed to

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India through round-tripping, investment etc.

Step taken

1) Deregistration of companies on non-filing of financial statement for 2 years

2) Benami Company Prohibition Act 2015

3) Increased activities of Directorate of Enforcement to identify

4) Automatic exchange of information with other countries.

Shell companies need to be eradicated from financial system to ensure fiscal health and stability.

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10. भारत ने हाल ही में अपना पहला जैविक डेटा केंद्र स्थापित किया है। इसके उद्देश्य और महत्व क्या है?

India has recently set up its first Biological Data Centre. What are its objectives and significance? (Answer in 150 words) 10

Indian government recently set up Indian Biological Data Centre (IBDC) at Faridabad to ensure consolidated data on biological resources.

Objectives

1) Collect data on biological resources from publicly funded research

2) Create system of sharing data with others

Eg - FAIR principle

3) Improving research facilities on biological resources and processing of data.

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Significance

1) Reduce dependence on American and European databanks

2) Easier access to data by Indian scientists +

3) Vaccine development

4) Monitoring of new variants ~~of~~ of viruses.

Eg- INSACOG data also present.

5) Counter emerging health challenges.

Eg - COVID

IBDC is very beneficial in implementing 'One Health' and achieving SDG-3.

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11. भारत में तीव्र शहरीकरण को देखते हुए, शहरी क्षेत्रों में पूंजी निवेश की बढ़ती मांग को पूरा करने के लिए म्युनिसिपल बॉण्ड्स का उपयोग करना आवश्यक हो गया है। चर्चा कीजिए।
In view of India's rapid urbanisation, it has become imperative to tap into municipal bonds to meet the rising demand of capital investment in urban areas. Discuss. (Answer in 250 words) 15

India has witnessed unprecedented urbanization in recent years, with ~35% population in urban areas, predicted to reach 50% by 2050. This has necessitated new financial models to sustain urban areas.

Need of municipal bonds

1) Financial empowerment of urban local bodies
Eg- ULBs own revenue ~0.1% of GDP

2) Provide for new sources of revenue generation for urban local bodies
Eg- Tax domains are mainly skewed towards property and liquour tax which are not adequate

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3) Rising demand of urban infrastructure expense

Eg- ULBs contribute only 15% to total urban infrastructure creation
↳ Rest ~~tiedo~~ tied funds from state and centre

4) Need to support economic growth prospects of cities.
Eg- 65% GDP comes from cities

5) Need to create infrastructure for increasing population. Eg Migration

6) Need to counter new-age challenges like pollution. Eg- 75% Greenhouse gas

Benefits of municipal bonds

1) Easy access to public finances for urban local bodies

Eg- Bangalore recently issued

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2) Helps in implementation of infrastructure projects Eg- AMRUT, Jal Jeevan

3) Increases economic activities, hence more tax revenue for government

4) Reduces dependence on state and central government. Eg- 30% funds to states are tied funds

5) Improves standard of lives of public, reduces pollution
Eg- Creation of public transport

6) Economic autonomy to local bodies to participate in capital market. Eg- Muni bonds are tradeable on stock exchange

Challenges → Lack of expertise on financial matters
→ Lack of awareness

Municipal bonds can be instrumental in achieving SDG-11 of sustainable cities.

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12. भारत ने आर्थिक संवृद्धि, महिला शिक्षा और प्रजनन दर जैसे विभिन्न विकास मानदंडों पर महत्वपूर्ण प्रगति हासिल की है। हालांकि, देश की महिला श्रम बल भागीदारी दर (FLFPR) वैश्विक स्तर पर सबसे कम है। चर्चा कीजिए। भारत में FLFPR में सुधार के लिए कौन-से कदम उठाए जा सकते हैं?

India has achieved significant strides in various development parameters such as economic growth, women's education, and fertility rates. However, the country's Female Labour Force Participation Rate (FLFPR) remains amongst the lowest in the world. Discuss. What measures can be taken to improve the FLFPR in India? (Answer in 250 words) 15

LPG reforms of 1991 opened doors of economic growth for India that had a profound impact on all development parameters like women's education and fertility rates.

Achievements in development parameters
- Fertility rate has reached replacement level of 2.1
- Institutional delivery ~90%
- Women education is ~100% at primary level
- 40% STEM graduates are women

Despite these, Female LFPR that is proportions of female labour force employed is only ~22% (PLFS) that has actually declined from 30% in 2000.

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Reasons for poor LFPR

1) Dual burden of work for women

Eg- women spend ~3 times their daily hours in unpaid work of house than men (Time Use Survey)

2) Glass ceiling effect

Eg- women not allowed to reach high posts in companies

3) Harrassment at workplace disincentivizes women. Eg- Vishaka case

4) Social stigma and domesticization of women. Eg- 40% women are housewives (Economic Survey)

5) Lack of high education and skilling opportunities

6) Breaks in career due to biological issues

Eg- Pregnancy, menstruation

7) lack of role models. Eg- Only 14% women entrepreneurs.

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Measures needed

1) Avenues for skill development
Eg- ~52% women graduates are employable (India Skills Report)

2) Financial and social empowerment
Eg- PM- Jan Dhan Yojana, SHGs

3) Legislative reforms
Eg- Maternity Act to include paternity leave to create level playing field (like Sweden)

4) Awareness in society
Eg- Beti Bachao, Beti Padhao

5) Creation of role models for women
Eg- Sudha Murthy

6) Participation in high paying, STEM jobs. Eg- KIRAN Scheme

7) Safety at workplace. Eg- Vishaka Guidelines

According to IMF, Indian GDP would increase by 27% if women participation in workforce is increased.

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13. फसल कटाई के बाद की मूल्य श्रृंखला में अक्षमताओं के कारण लघु और सीमांत किसानों की आजीविका पर अत्यधिक प्रतिकूल प्रभाव पड़ने के साथ-साथ फसल की हानि हो रही है। भारत के संदर्भ में चर्चा कीजिए। इन चिंताओं को दूर करने के लिए सरकार ने क्या कदम उठाए हैं?

The inefficiencies in post-harvest value chain are leading to crop losses, with significant adverse impact on the livelihood of small and marginal farmers. Discuss in the context of India. What steps has the government taken to address these concerns? (Answer in 250 words) 15

Despite being 2nd largest producer of foodgrains in the world, India ranks 107 in Hunger Index. This mismatch is due to inefficiencies in post-harvest value chain.

Inefficiencies in value chain

1) lack of sufficient storage capacity

Eg - Buffer stock at peak ~ 90 M tonnes
Buffer capacity ~ 85 M tonnes } FCI data

2) Poor participation of private sector in cold storage infrastructure.

Eg - Due to Essential commodities Act

3) Poor post-harvest processing infrastructure

⟹ wastage of crops ~ 5-10% waste in

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agriculture, ~11% in horticulture (ICAR 2015)

4) Lack of forward and backward linkages. Eg- Poor farmgate procurement.

Impact on Small & Marginal farmers

1) Exploitation by traders at APMC
Eg- Forced to sell at low price due to lack of cold storage

2) Poor transportation services from farm to market. Eg- MSP mainly benefits large farmers

3) Poor shelf-life of agricultural commodities due to lack of processing facilities

4) Rotting of foodgrains due to poor and damped storage conditions
Eg- Recent crop damage in Chennai
↳ Rat infestation

5) Poor access to national and global markets.

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Measures taken

1) Creation of food Parks for processing
Eg - 22 out of 42 food parks operational

2) Participation of private sector in storage infrastructure. Eg - Relaxation of Essential Commodities Act

3) Assistance in Transportation and Marketing
Eg - Operation Greens, ODOP, PM-FME

4) Credit availability for storage and processing. Eg - MUDRA loans, PM-Krishi Sampada
KCC loans

5) Digitization of market access.
Eg. e-NAM, e-Kisan Mandi

Way forward
- APMC reforms
- More private participation
- Contract farming

Post harvest infrastructure is needed to achieve target of double farmer income under PM 7-point program

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14. ऊर्जा क्षेत्रक के संदर्भ में डीकार्बोनाइजेशन, विकेंद्रीकरण और डिजिटलीकरण की प्रवृत्तियां तेजी से उभर रही हैं। चर्चा कीजिए।
When it comes to the energy sector, the trends of decarbonisation, decentralisation and digitisation are fast emerging. Discuss. (Answer in 250 words) 15

Energy sector is the backbone of the economy of any country and precedes the economic growth. India's energy sector is strong coal dependent (~50%)

Recent trends in energy sector

1) Decarbonization

i) Focus on low carbon energy production. Eg- Paris commitments

ii) Renewable energy push

Eg- India's Panchamrit commitment to produce 50% electricity from renewable sources

iii) Shift from coal-based thermal power plants to new alternate fuels.

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Eg- Electric vehicles, Green Hydrogen

iv) Optimization of energy demand

Eg- India Cooling Action Plan (ICAP) focuses on reducing cooling energy demand

v) Carbon neutrality in energy sector

Eg- Net-zero commitments of many countries

2) Decentralization

i) Local production of electricity

Eg- Energy Conservation Act (Amendment) Bill 2022 provides for local energy production

ii) State-level renewable energy push

Eg- UP Bioenergy policy 2022
↳ 1 biogas plant in each tehsil

iii) Financial and technological transfers to small countries and states to deal with carbon-intensive energy sector

Eg- Just Energy Transition scheme

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iv) Empowerment of local bodies in production and generation of electricity.

Eg - Waste to Energy Program

v) Participation of farmers in energy.

Eg - PM KUSUM

3) Digitization

i) Smart metering of electricity

Eg - In Bihar, Noida

ii) Digital monitoring of electricity production and transmission

iii) Incorporation of digital technologies in thermal power plants and other energy production sites.

iv) Carbon trade happens on digital platforms

Eg - ESCerts under PAT.

Energy sector is fast undergoing drastic changes and these must be adopted to achieve $5 trillion economy

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15. भारत में रासायनिक आपदाओं को कम करने संबंधी चुनौतियों पर चर्चा कीजिए। इन चुनौतियों का समाधान कैसे किया जा सकता है?

Discuss the challenges in mitigating chemical disasters in India. How can these challenges be addressed? (Answer in 250 words) 15

Chemical disasters are caused by release of harmful chemicals and toxins in atmosphere, water, soil etc that causes damage to biodiversity and economy.

Reasons behind chemical disasters

1) Negligence of people handling chemicals

Eg- Bhopal gas tragedy 1984

2) Poor competence of chemical plants

Eg- lack of warning system ⇒ Vizag Styrene leak

3) Obsolete technologies used.

Eg- Assam Tinsukhia gas ~~to~~ leak case.

4) lack of knowledge among engineers.

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5) Policy paralysis and poor vigilance

Challenges in mitigation

1) Lack of accountability mechanism
Eg- Strict liability principle still used despite court's direction to use Absolute liability principle in environment disasters (MC Mehta case)

2) Lack of finances to upgrade infrastructure of chemical plants

3) Poor compliance with EIA procedure while setting up plants

4) No regular audit mechanism
Eg- No involvement of local bodies

5) Poor Environment Social Governance (ESG) in chemical plants

6) Poor treatment of chemical waste before release into water.

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Measures needed

1) Creation of comprehensive law and monitoring authority
Eg- similar to NDMA (or include under NDMA ambit)

2) Application of Absolute liability principle

3) Strict compliance with EIA norms.

4) Social audits of chemical plants

5) Hazard zonation and creation of buffer area under plants where habitation is avoided.

6) International Best Practices.
Eg- Chemical Toxins convention guidelines.

Chemical disasters can cause inter-generational issues and obstruct utilization of demographic dividend of India.

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16. जलवायु क्षतिपूर्ति (क्लाइमेट रेपरेशन) के विचार से आप क्या समझते हैं? इस विचार को वर्तमान संदर्भ में लागू करने की आवश्यकता पर चर्चा कीजिए। इसके कार्यान्वयन के समक्ष आप क्या चुनौतियां देखते हैं?

What do you understand by the idea of climate reparations? Discuss the need to implement this idea in the current context. What are the challenges you foresee in its implementation? (Answer in 250 words) 15

Climate reparations refers to providing compensation to countries or communities affected by climate change impacts, by those who are responsible for the climate change consequences.

Climate reparations
- → Based on CBDR principle
- → Part of Paris summit commitments
- → Ensures climate justice

Need of climate reparation

1) Empower affected countries to fight adverse impacts of climate change

Eg- Sea level rise in SIDN countries ⇒ Need of relocation ⇒ Kiribati

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2) Apply concept of Polluter pays principle
Eg- western countries responsible for historic emissions

3) Ensure financial and technology transfer to vulnerable nations.
Eg- Loss and Damage Fund was created in Warsaw convention of UNFCCC for this

4) Help vulnerable countries build resilient infrastructure and climate friendly economic growth.
Eg- CDRI initiative

5) Ensure climate equity and climate justice.

Challenges

1) Lack of will from developed nations.
Eg- Only 33% of promised climate finance was provided (COP 27 Glasgow)

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2) Self-interest of developed countries
Eg- Many countries returning to emission oriented economic path. Eg- Germany

3) Huge corpus of fund is needed
Eg- $100 Billion per annum

4) Political consensus is missing
Eg- Withdrawal of USA and others from Kyoto Protocol

5) Poor implementation of carbon market mechanism. Eg- Article 6 of Paris agreement not enforced

6) Sluggish discussion on climate reparation issue.

Way forward
- → Proactive involvement of western countries
- → Proper use of platforms like UNFCCC
- → Role of leaders of Global South like India

Climate reparations are imperative to ensure achievement of 2°C temperature target

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17. अदृश्य युद्ध (इनविजिबल वारफेयर) क्या है? भारत की सुरक्षा के समक्ष उत्पन्न होने वाली चुनौतियों को ध्यान में रखते हुए, अदृश्य युद्ध के खतरे से निपटने के लिए उठाए गए कदमों पर चर्चा कीजिए।
What is invisible warfare? Keeping in view the challenges it poses to India's security, discuss the steps that have been taken to tackle the menace of invisible warfare. (Answer in 250 words) 15

Invisible warfare is the new age approach to warfare which is not directly fought on battlefields, rather in other domains like economy, technology, space, geopolitics. It is also called grey-zone warfare and is part of hybrid warfare.

Challenges posed by invisible warfare

1) Use of non-conventional domains which may not be India's strengths

Eg - Health sector
↳ Use of biological weapons like COVID virus

2) Impact on economic stability

Eg - Violation of 'Rules of origin' and application of non-trade barriers by China.
⟹ Damages domestic firms

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3) Use of adverse technology to harm India's interests.

Eg- Cyberattacks on India's critical infrastructure like power grids

4) Weaponization of data

Eg- To influence public opinion by misinformation and fake news

5) Misuse of social media to provoke disharmony and impact elections

Eg- Delhi riots 2020

6) Use of multilateral diplomacy to harm India's interests.

Eg- Use of UNSC to support Pakistan based terrorists by China

7) Using economic might to create adversaries in India's neighbourhood to 'contain' India

Eg- China's influence on Nepal, Sri Lanka

Don't write anything this margin (इस भाग में कुछ ना लिखें)

Measures taken

1) Strengthening of India's data protection domain. Eg- Personal Data Protection Act 2023

2) Research on neo-age technology
Eg- AI-ML, Big data

3) Regulations to monitor social media
Eg- IT Intermediary Guidelines

4) Institutional measures to handle cyber attacks. Eg- CERT-IN,

5) Strengthening of soft power through diplomacy and goodwill.
Eg- Vaccine Maitri

6) Economic resilience by prudent engagement with external markets
Eg- Denial of RCEP etc.

Invisible warfare can create neo-dimensions of security threat and must be dealt with proactively.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

18. भारत की राष्ट्रीय सुरक्षा को बनाए रखने में भू-स्थानिक डेटा और संबद्ध तकनीकों के महत्व पर चर्चा कीजिए।

Discuss the significance of geospatial data and associated technologies in safeguarding the national security of India. (Answer in 250 words) 15

Geospatial data refers to data on topography and different land uses of a region procured using satellite technology from space.

Significance in national security

1) Monitoring of sensitive areas
Eg- Left-wing extremism areas
↳ Red corridors

2) Monitoring maritime activities of neighbouring belligerent nations
Eg- Encroachment of China in Indian ocean region ⇒ Spying

3) Making policies around maritime security.

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4) Ensuring security of critical infrastructure.

Eg- Nuclear power plants, power grids

5) Monitoring border areas

Eg- Proliferation of border villages along China - Arunachal Pradesh border

6) Countering insurgent activities of other nations. Eg- Pakistan's infiltration in Jammu & Kashmir during Kargil

7) Planning of military operations

Eg- Uri operation

Balakot strike

8) Strengthening navigation capabilities

Eg- NAVIC is a technology associated with geospatial data.

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9) undertaking investigations of serious crimes. Eg- Mobile tracking is done using geospatial technologies

Associated challenges

1) Privacy issues
Eg- Right to Privacy may be breached

2) Relatively poor technology compared to nations like China
Eg- Deep sea ~~spy~~ spying vessels can't be detected by India's satellites

3) Lack of Research and finances to invest in these technologies.

Geospatial data is crucial to ensure internal and external security and counter the '2 and half front' security challenge.

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19. शिक्षा में कृत्रिम बुद्धिमत्ता (AI) का अनुप्रयोग पारंपरिक शिक्षण विधियों में कैसे क्रांति ला सकता है और छात्रों के लर्निंग आउटकम्स में सुधार कर सकता है? व्याख्या कीजिए।

How can the application of artificial intelligence (AI) in education revolutionize traditional teaching methods and improve student-learning outcomes? Explain. (Answer in 250 words) 15

Artificial Intelligence is a deep learning technology that uses machine learning algorithms to make computers imitate the intelligence of humans. It has uses in diverse fields, including education.

AI to revolutionize teaching methods

1) Customized teaching materials for teachers. Eg- Chat GPT

2) Use of virtual reality in teaching Eg- AR/VR and MR technologies

3) Feedback mechanism for teachers

4) Consolidation of relevant teaching materials and methods. Eg- Smart Boards

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AI to revolutionize student learning

1) Decentralized approach to education. Eg - Use of digital technologies like MooCs

2) Better understanding of needs of every student

3) Automated regenerative information can be accessed
Eg - Google's Bard

4) Use of robots for teaching.

Don't write anything this margin
(इस भाग में कुछ ना लिखें)

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Don't write anything this margin
(इस भाग में कुछ ना लिखें)

20. भारत में परमाणु प्रौद्योगिकी के विकास में होमी जहांगीर भाभा का योगदान क्या है? क्या आपको लगता है कि भारत को अपनी ऊर्जा सुरक्षा सुनिश्चित करने के लिए परमाणु ऊर्जा के विकास को प्राथमिकता देनी चाहिए?

What are the contributions of Homi Jahangir Bhabha in the development of nuclear technology in India? Do you think India should prioritise the development of nuclear energy to ensure its energy security? (Answer in 250 words) 15

Homi Bhabha is known as father of Indian nuclear technology.

Contributions

1) Established BARC for nuclear research

2) Initiated India's nuclear program despite USA's threat

3) Instrumental in first nuclear test. - Eg- Operation Smiling Buddha

4) India's civil nuclear energy program.

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Currently, nuclear energy is ~~7%~~ ~7MW of India's capacity.

Benefits

1) Can ensure energy security

Eg - Reduce crude dependence

2) Reduce import bill

Eg - Energy imports are reason behind 1.6% CAD

3) Reduce carbon footprint of energy sector

Challenges

1) Radioactive waste

Eg - Uranium, Thorium

2) Access to raw material

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3) Highly capital intensive

4) Danger of leakage.

Eg- Chernobyl

Way forward

1) Prudent establishment of plants

Eg- Kudankulam plant

2) Global co-operation

Eg- India-US civil nuclear deal

3) Raw material deals

Eg- Kazakhstan

Nuclear technology can help achieve 'Atmanirbharta' in energy domain.

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